Pro-face

Built-in Computer
PS-2000B Series
User Manual

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Digital

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Preface

Thank you for purchasing Pro-face's PS-2000B Series Built-in Computer, hereafter referred to as the "PS-B" or "PS-B unit". This unit, which utilizes Pro-face's newest PC architecture, is equipped with a wide range of standard-equipment interfaces and is designed for use in a wide variety of industrial applications.

Prior to using the PS-B unit, be sure to read this manual thoroughly to familiarize yourself with the unit's operation procedures and functions.

< Note >

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2. The information in this manual is subject to change without notice.
3. This manual was written with care; however, if you should find any errors or omissions, please contact Pro-face and inform them of your findings.
4. Please be aware that Digital Electronics Corporation shall not be held liable by the user for any damages, losses, or third party claims arising from the uses of this product.

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Essential Safety Precautions

This manual includes the following cautions concerning procedures that must be followed to operate the PS-B unit correctly and safely. Prior to operating the PS-B, be sure to read this manual and any related materials thoroughly to understand the correct operation and functions of this unit.

■ Safety Icons

To explain the correct and safe usage of the PS-B unit, throughout this manual the following icons are provided next to actions requiring special attention. These icons indicate the following situations:

WARNING — Indicates situations where severe bodily injury, death or major equipment damage may occur.

CAUTION — Indicates situations where slight bodily injury or machine damage can occur.

WARNINGS

- **To prevent an electric shock, be sure to connect the power cord terminals to the PS-B unit's terminal block before connecting the power cord to the main power supply.**
- **Be sure to use only the specified voltage with the PS-B unit. A fire or electrical shock may occur if voltages used that are beyond the specified range.**
- **Be sure to turn the unit's power switch OFF before removing the PS-B unit's cover. This is because the PS-B unit's internal parts carry high voltages.**
- **Do not modify the PS-B unit in any way. Modifying the unit can cause a fire or create an electrical hazard.**
- **Be sure to immediately turn the unit's power switch OFF, disconnect the power cord, and contact your local Pro-face distributor if metal particles, water or other types of liquids contact any of the PS-B unit's internal parts.**
- **Be sure to read and understand Chapter 2 "Hardware Installation" thoroughly in order to select an appropriate installation location for the PS-B unit.**

⚠ WARNINGS

- **Be sure to turn the PS-B unit's power switch OFF Before either connecting or disconnecting a board or interface connector.**
- **Do not install the PS-B unit in areas containing flammable gases.**
- **Do not use the PS-B unit with aircraft control devices, aerospace equipment, central trunk data transmission (communication) devices, nuclear power control devices, or medical life support equipment, due to these devices' inherent requirements of extremely high levels of safety and reliability.**
- **Be sure to design redundant and/or failsafe systems to ensure the proper degree of reliability and safety when using the PS-B unit with transportation vehicles (trains, cars and ships), disaster and crime prevention devices, various types of safety equipment, non-life support related medical devices, etc.**

CAUTIONS

- **Do not expose the PS-B to, or operating the PS-B in direct sunlight, high temperatures and humidity, and in areas that have excessive dust and vibration.**
- **Do not use the PS-B unit in areas where sudden, extreme changes in temperature can occur. These sudden changes may cause condensation to form inside the unit, possibly leading to an accident.**
- **Be sure the PS-B unit's air circulation vents are clear and clean to prevent the PS-B unit from overheating, and keep the PS-B unit's operation area well ventilated.**
- **Do not operate or store the PS-B unit near chemicals, or where chemicals can come into contact with the unit.**

When PS-B Unit's Hard Disk (HDD) data is lost:

- **The Digital Electronics Corporation cannot be held responsible or provide any compensation for damage(s) caused by the loss of data stored in the PS-B unit's hard disk drive (HDD). It is therefore strongly suggested that all important data and software be backed up regularly to an external data backup device.**
- **Please be aware that the Digital Electronics Corporation bears no responsibility for any damages resulting from the customer's application of this unit's hardware or software.**
- **Since the PS-B unit's hard disk drive (HDD) is a consumable item, i.e. it has a finite usage lifetime, be sure to back up its data regularly and prepare a spare HDD unit.**
- **To prevent file data damage, be sure to shut down the PS-B unit's OS before turning the power switch OFF.**
- **After turning OFF the PS-B unit's power, wait until the internal HDD stops spinning before turning on the power again (approx. 5 seconds).**

Documentation Conventions

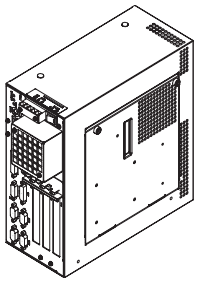
The list below describes the documentation conventions used in this manual.

Symbol	Meaning
	Indicates important information or procedures that must be followed for correct and risk-free software/device operation.
	Provides useful or important supplemental information.
*1	Indicates useful or important footnote information.
	Refers to useful or important supplemental information.
1) , 2)	Indicates steps in a procedure. Be sure to perform these steps in the order given.
PS-B/PS-B Unit	Abbreviation for the PS-2000B Series of Built-in Computers.
FP	Abbreviation for FP-2500 and FP-2600TFT color touch panel display.

Package Contents

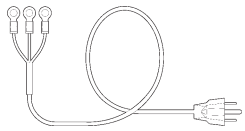
The PS-B unit's packing box contains the items listed below. Please check to confirm that all items shown below have been included.

■ **PS-B Unit (1)**

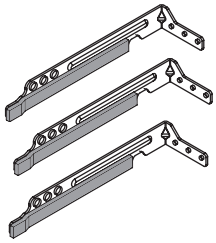


■ **Installation Brackets (2) (1 set)**
Attachment Screws (4)

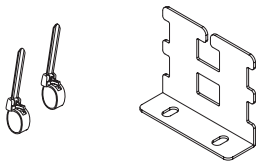
■ **Power Cord (1)**



■ **Expansion Board Stays (3)**
Attachment Screws (6)



■ **USB Cable Bracket (1)**
Clamps (2)
Clamp Screws (2)



■ **CD-ROM (PS2000B User Manual and Driver CD) (1)**

■ **Installation Guide (Japanese/English) (1)**

- **Be careful when handling the PS-B unit not to damage the built-in HDD.**
- **This cord is designed only for AC100V/AC115V use. Any other voltage will require a different cord.**

- The CD-ROM included in this package contains a User Manual, RAS-API Reference Manual, and PS-B Series Utility and Driver files.

  Reference *Chapter 4 - Setting Up Your PS-B unit*

- When you order a PS-B unit built to your specifications, that PS-B package should include each optional items' Installation Guide. Please use that guide to check the contents of each optional items' package.

UL/c-UL (CSA) Application Notes

The PS2000B-41 units are UL/c-UL (CSA) recognized products. (UL File No. E171486). Please pay special attention to the following instructions when applying for UL/c-UL approval for machinery which includes any of these PS-B units. Equipment with a PS-B mounted in it requires UL/c-UL (CSA) evaluation for the combination of the PS-B and the equipment.

The PS-B conforms as a component to the following standards:

- UL 60950, Third Edition (Standard for Safety of Information Technology Equipment, including Electrical Business Equipment)
- CSA-C22.2 No. 950-M95 (Standard for Safety of Information Technology Equipment, including Electrical Business Equipment)
- **PS200B-41 (UL Registration Model: 3180005-01)**

If the following requirements are not met, the PS-B unit may fail to meet UL/c-UL (CSA) standard requirements.

- The PS-B unit should be used as a built-in component of end-use product.
- The PS-B unit is intended for indoor use only.
- When connecting the PS-B unit's power cord, be sure to use a cord that is appropriate for the current and voltage used, and that has 0.75 mm2 or larger conductive wires.
- When an end-use product will include the PS-B, be sure to design the PS-B unit's power cut-off switch as a separate disconnect device and locate it where the operator can easily reach it.
- There is a danger of explosion if the PS-B unit's backup battery is incorrectly replaced. This battery should be replaced only with same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.
- Be sure the unit the PS-B is built into uses an UL/c-UL (CSA) approved structure.

CE Marking Notes

The PS2000B-41 units are CE marked, EMC compliant products.

<These units comply with the following standards>

- **Safety**
  EN60950
- **EMI**
  EN55011 Group1 (Class A), EN61000-3-2, EN61000-3-3
- **EMS (EN61000-6-2)**
  EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11

If following requirements are not met, the PS-B may fail to meet EN60950 standard requirements.

- The PS-B should be used as a built-in component of an end-use product.
- The PS-B is intended for indoor use only.
- When connecting the PS-B unit's power cord, be sure to use a cord that is appropriate for the current and voltage used, and that has conductive wires that are 0.75 mm2 or larger.
- When an end-use product will include the PS-B, be sure to design the PS-B unit's power cut-off switch as a separate disconnect device and locate it where the operator can easily reach it.
- There is a danger of explosion if the PS-B unit's backup battery is incorrectly replaced. This battery should be replaced only with same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.
- Be sure the unit the PS-B is built into uses an EN60950 approved structure.

Memo

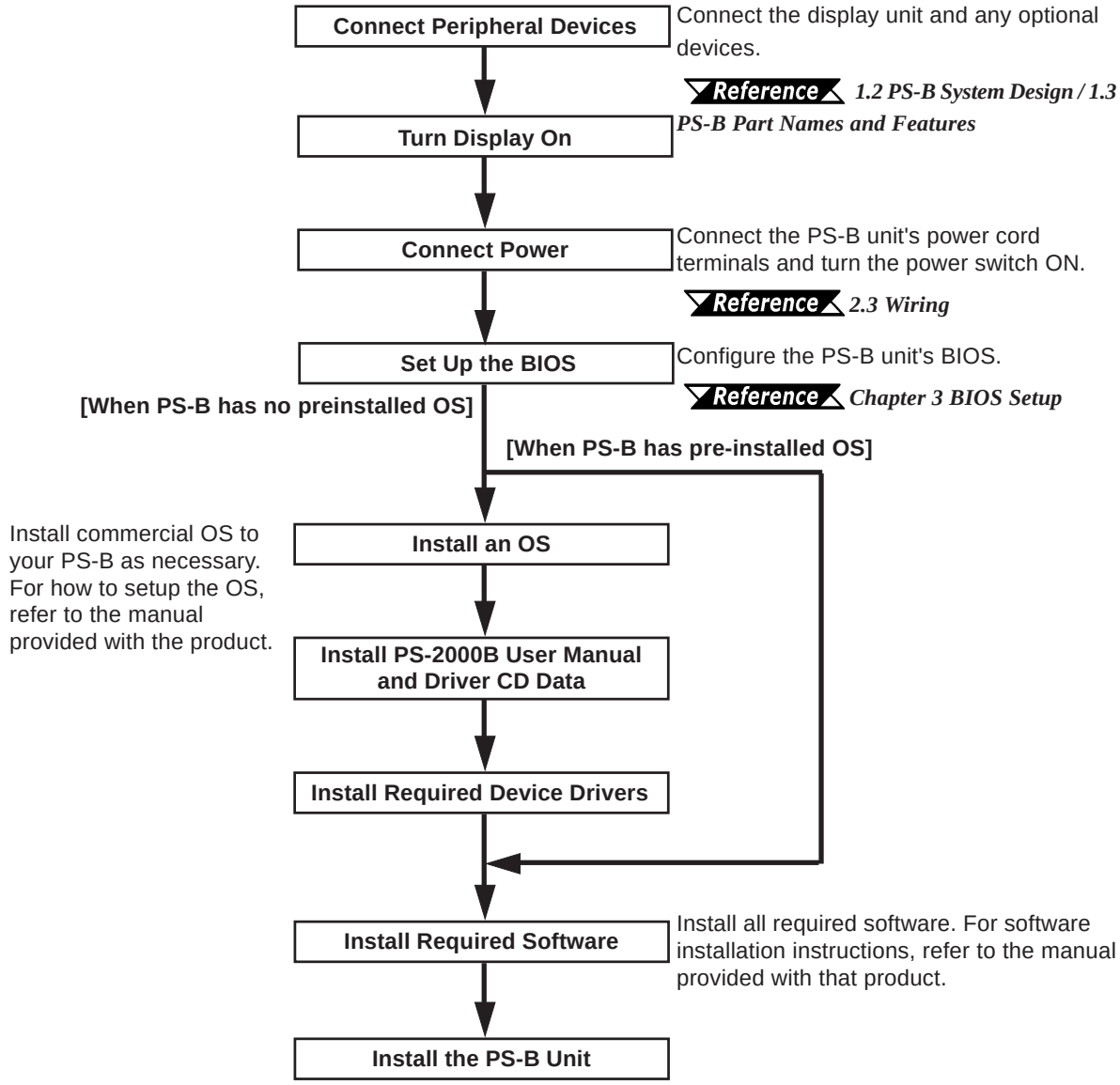
Chapter 1 PS-B Unit Basics

1. Prior to Operating the PS-B Unit
2. PS-B Unit System Configurations
3. PS-B Unit Part Names and Features
4. Interface
5. PS-B Unit External Views and Dimensions

This chapter describes the procedures required prior to operating the PS-B. It also explains the types of peripheral devices that can be connected to the PS-B.

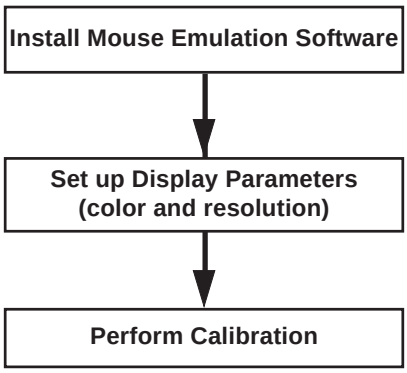
1.1 Prior to Operating the PS-B Unit

The following explanation shows the preparation steps required prior to operating the PS-B.


Connect Peripheral Devices
Connect the display unit and any optional devices.
Reference 1.2 PS-B System Design / 1.3 PS-B Part Names and Features
Turn Display On
Connect Power
Connect the PS-B unit's power cord terminals and turn the power switch ON.
Reference 2.3 Wiring
Set Up the BIOS
Configure the PS-B unit's BIOS.
Reference Chapter 3 BIOS Setup
[When PS-B has no preinstalled OS]
[When PS-B has pre-installed OS]
Install commercial OS to your PS-B as necessary. For how to setup the OS, refer to the manual provided with the product.
Install an OS
Install PS-2000B User Manual and Driver CD Data
Install Required Device Drivers
Install Required Software
Install all required software. For software installation instructions, refer to the manual provided with that product.
Install the PS-B Unit

Note: When using a Flat Panel Display (FP) as a touch panel, additional preparation steps are required. After all device drivers are installed, complete the following steps prior to installing applications and the PS-B unit.

Reference *FP Series User Manual*



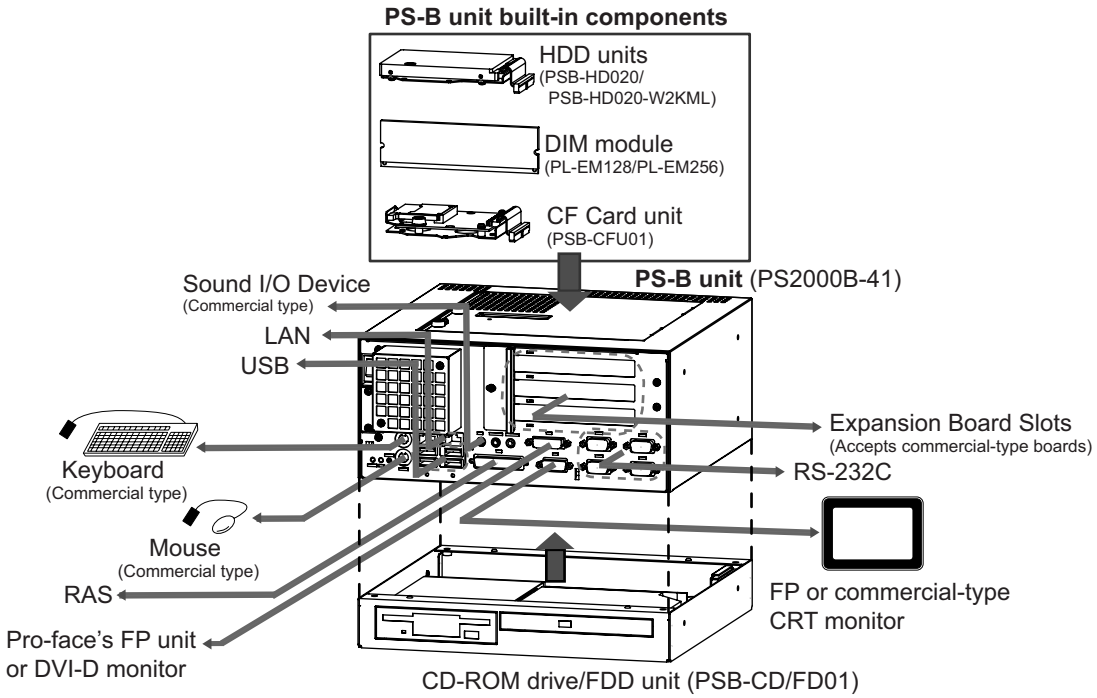
Important

- **After hardware setup is completed, the OS must be used to create partitions and format (initialize) the HDD before any data or applications can be saved to the hard disk drive. For details concerning these procedures, refer to the OS manufacturer's instruction manual.**
- **Whenever you turn the PS-B unit's power OFF, wait until the internal HDD stops spinning (approximately 5 seconds) before turning the power ON again.**

1.2 PS-B System Design

Up to two HDD units or CF Card units can be connected internally. In addition, an optional CD-ROM drive or FDD unit can be connected externally.

The following diagram shows the peripheral devices that can be connected to the PS-B unit.



Note: When internally connecting two HDD units or two CF Card units (or one of each), be sure to designate one as the master unit and the other as the slave unit; otherwise, a unit malfunction or operation error may occur. For master/slave setup procedures for each unit, refer to that product's instruction manual.

■ Commercial-type Products

Commercially available expansion boards (PCI bus compatible boards), keyboards, mouse units and printers can all be used with the PS-B. Also, the PS-B unit's built-in USB connector allows USB-type devices to be used as well. However, some commercial PC peripherals may not be compatible with the PS-B. If you experience compatibility problems, contact your local Pro-face distributor.

- Be sure to use only DIM modules manufactured by Digital Electronics Corporation. Certain commercially available DIM modules will not operate properly in the PS-B unit.
- When using USB-type peripheral devices, be sure to thoroughly read that product's instruction manual prior to use.

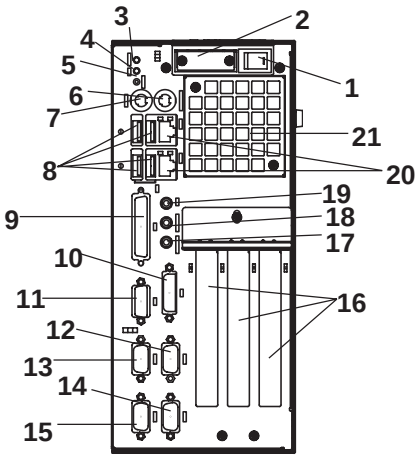
■ Display Unit

Pro-face manufactures a Flat Panel Display (FP series) which can be connected with the PS-B unit.

Some FP display has not only an Analog RGB interface but also a DVI-D interface for the PS-B unit, and can be connected via Pro-face's 10m DVI-D cable.

For details, refer to the FP's catalogue or Installation manual, or contact your local Pro-face distributor.

1.3 PS-B Part Names and Features



Front

1: Power Switch

Turns the PS-B main unit ON or OFF.

2: Power Input Terminal

Connect the AC100V/AC240V power cord terminals here.

3: Power LED (POWER)

Indicates the PS-B unit's power status and also functions as a RAS LED indicator

Reference *5.1 RAS Features*

4: Hard Disk LED (HDD)

5: Hardware Reset Switch (RESET)

Pressing this switch re-starts the PS-B unit.

6: Keyboard Connector (KEYBOARD)

Connect a PS/2-compatible keyboard here.

7: Mouse Connector (MOUSE)

Connect a PS/2-compatible mouse here.

8: USB Connector (USB)

Provides a USB 1.1 compatible connection. Connect a USB connectable device here.

9: RAS Connector (RAS)

Interface for DIN, DOUT, Watchdog, and Remote Reset features. (D-sub 25-pin male connector)

10: DVI-D Connector (DVI)

Connect a DVI-D monitor here.

11: Analog RGB Connector (VGA)

Connect an analog RGB monitor here.

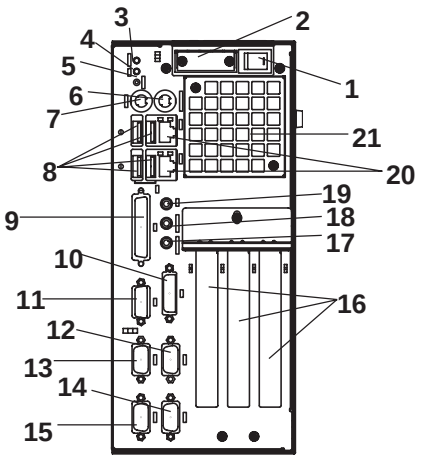
12: RS-232C Connector (COM1)

Selectable between RI and 5V.

13: RS-232C Connector (COM2)

14: RS-232C Connector (COM3)

Selectable between RI and 5V.



Front

15: RS-232C Connector (COM4)

RS-232C interface (D-sub 9 pin male connector). Allows data transfer with other equipment. Peripheral devices can be connected here.

16: Expansion Slots

17: Speaker Output (SPEAKER)

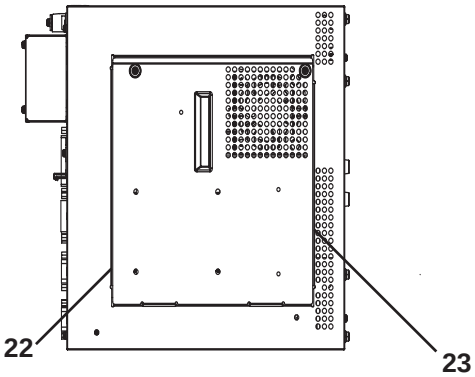
18: Line Input (LINE IN)

19: Microphone Input (MIC)

20: LAN Connector (LAN1/LAN2)

IEEE802.3-compatible Ethernet interface. Changeover between LAN1 and LAN2 is performed automatically.

21: Cooling Fan



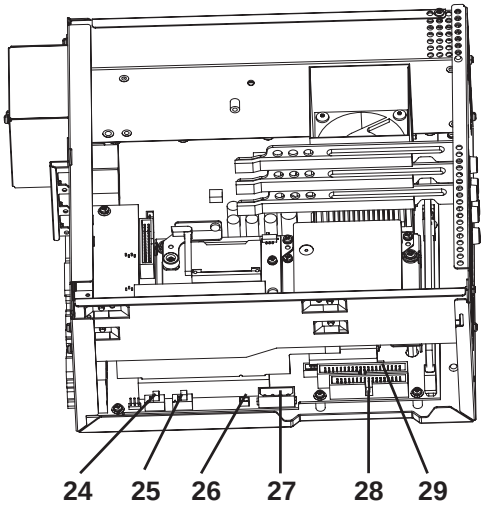
Right

22: Cover

This cover is removed when installing an optional CD-ROM/FDD unit, HDD unit, CF Card unit, or DIM module.

23: Maintenance Cover

This cover is removed when installing an HDD unit, CF card, or DIM module.



Main Unit Internal View

24: +5 V/RI Changeover Switch (COM1)

25: +5 V/RI Changeover Switch (COM3)

26: Voice Input Connector for CD-ROM

27: CD-ROM/FDD Unit Power Connector

28: FDD unit Connector

29: CD-ROM Drive Connector

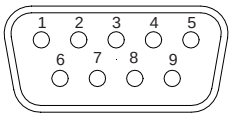
30: Standard Display ON/OFF Switch

When connecting Digital's Standard Display to the PS-B unit, be sure to set Dip Switch #4 to ON.

1.4 Interfaces

1.4.1 RS-232C Interface (COM1/COM2/COM3/COM4)

D-sub 9-pin (Male)

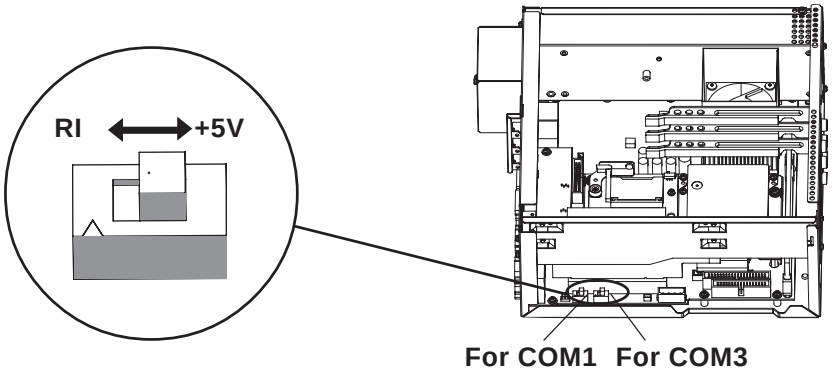


Screw Size: (4-40), Inch type

Pin No.	Signal Name	Pin No.	Signal Name
1	CD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI/+5V
5	GND	FG	FG

- **The GND terminal is the signal ground. Be sure to connect the GND terminal with the SG (signal ground) terminal of the opposite side's connector.**
- **The FG and SG terminals are connected inside the PS-B unit. When connecting another device to the PS-B, design your system so that it will form SG short-circuit loop.**

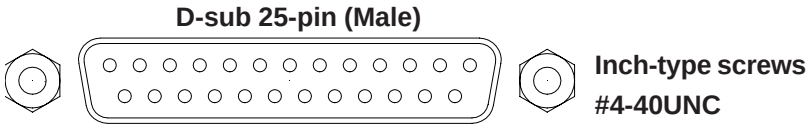
Pin No. 9 "+5V/RI" changeover is available only with COM1 and COM3. COM2 and COM4 are fixed to RI. To change the COM1 or COM3 setting from +5V to RI or vice-versa, remove the main unit cover and slide the +5/RI changeover switch to the desired setting. The factory setting is RI.



+5V/RI Changeover Switch **PS-B Internal View**

- **Be sure to check the interface specifications of the opposite side's connector before changing this setting. Incorrect settings can result in a malfunction or unit damage.**
- **Be sure to turn the PS-B unit OFF prior to changing internal settings to prevent a malfunction.**

1.4.2 RAS Interface (RAS)



Pin No.	Signal Name	Pin No.	Signal Name
1	GND	14	GND
2	+5V (100 mA max.)	15	+5V
3	+12V (100 mA max.)	16	DIN3 (+)
4	NC	17	DIN3 (-)
5	DIN2 (+)	18	RST (+)
6	DIN0 (+)	19	DOUT1 (-)
7	DOUT2 (-)	20	DOUT1 (+)
8	DOUT2 (+)	21	DOUT3 (-)
9	DOUT0 (-)	22	DOUT3 (+)
10	DOUT0 (+)	23	RST (-)
11	DIN2 (-)	24	DIN1 (-)
12	DIN0 (-)	25	NC
13	DIN1 (+)		

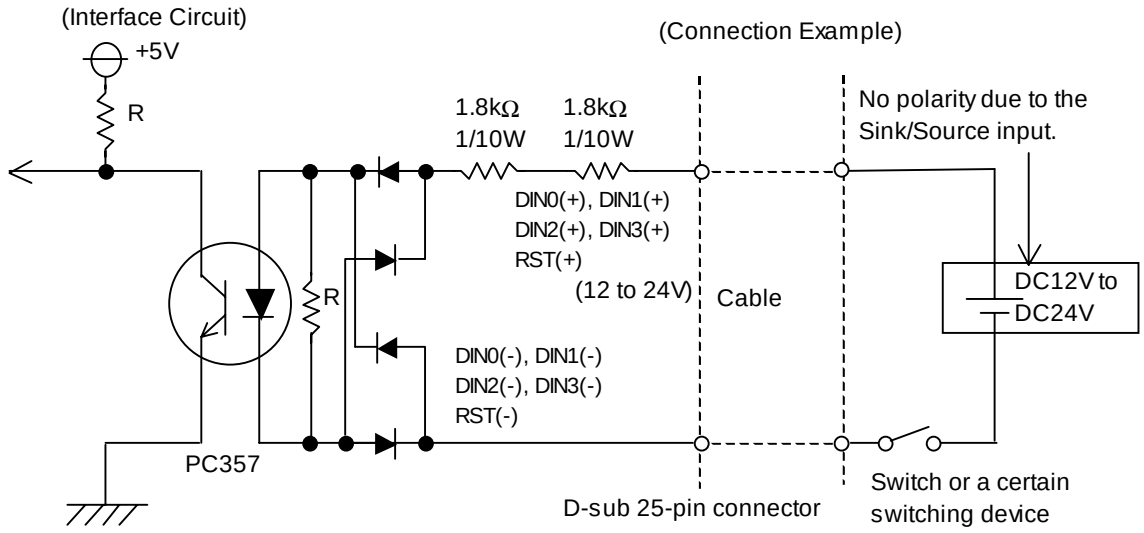
Important

Be sure to use only the rated voltage when using the external power output of No. 2 (+5V) and No. 3 (+12V); otherwise a malfunction or unit breakdown may occur.

Reference *For RAS feature details, refer to* ***5.1 RAS Features.***

■ External Input Signal (Common for DIN and RST Input)

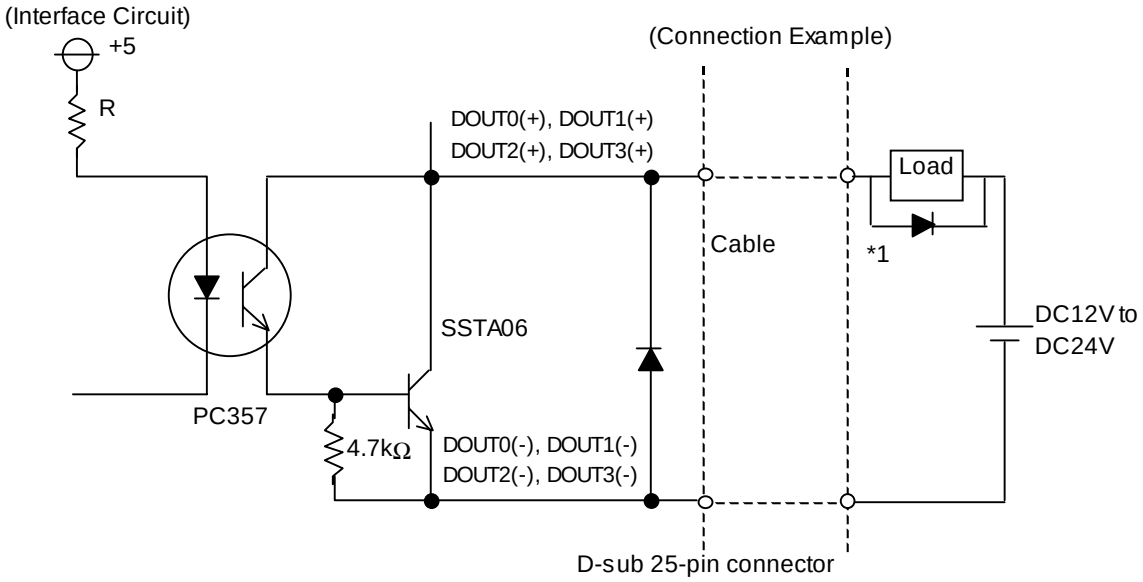
Input Voltage	DC12V to DC24V
Input Current	7 mA
Operating Voltage	ON voltage: 9V (min.), OFF voltage: 3V (max.)
Isolation Method	Via a photocoupler



- **Be sure to hold the input level for 1.5 seconds or longer when using general signal input (DIN); otherwise, the signal may not be detected.**
- **Be sure that the voltage values between terminals will not exceed the rated input voltage. If these values are too high, a unit breakdown may occur.**
- **Sink/Source-type input prevents polarity reversal problems. (DIN (-) and RST (-) can become positive, and DIN (+) and (RST (+) can become negative.) Be sure that the input voltage does not exceed the rated range.**

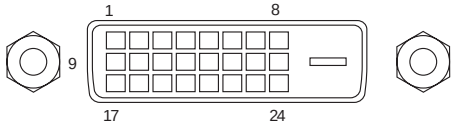
■ External Output Signal (DOUT)

Rated Load Voltage	DC12V to DC24V
Maximum Load Current	100 mA/point
Maximum Voltage Drop between Terminals	1.5V (at 100-mA load current)
Isolation Method	Via a photocoupler



- **Be sure to operate the PS-B unit only within the maximum load current range. Excessive load current can cause a unit breakdown.**
- **Be sure to include terminal to terminal voltage values in your system design calculations for load current and load voltage. When the load current becomes large, a 1.5V (max) drop will occur between the terminals.**
- **Be sure to connect the protective diode shown in the above diagram (*1) when connecting an inductive load**

1.4.3 DVI-D Interface



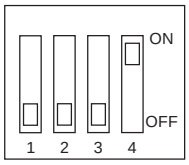
24-pin (Female)

Inch-type screws #4-40UNC

Pin No.	Signal Name	Pin No.	Signal Name
1	TMDS DATA2-	13	NC
2	TMDS DATA2+	14	NC
3	TMDS DATA2 SHIELD	15	GND
4	NC	16	Hot Plug Detect
5	NC	17	TMDS DATA0-
6	DDC Clock	18	TMDS DATA0+
7	DDC Data	19	TMDS DATA0 SHIELD
8	NC	20	NC
9	TMDS DATA1-	21	NC
10	TMDS DATA1+	22	TMDS CLOCK SHIELD
11	TMDS DATA1 SHIELD	23	TMDS CLOCK+
12	NC	24	TMDS CLOCK-

■ Connecting the FP-3700T

When connecting Pro-face's FP-3700T to a PS-B unit using the FP-DV01-100<10m> cable, be sure to change the dip switch settings on the PS-B unit's main circuit board. Refer to the following figure when changing the settings. For details about dip switch positions, refer to *1.3 PS-B Part Names and Features*.
The factory settings for switches 1 to 4 are all OFF.



SW #4 : OFF → ON

	ON	OFF	Default
SW1	Reserved		All OFF
SW2	Reserved		
SW3	Reserved		
SW4	FP-3700T *1 (with FP-DV01-100)	Different monitor	

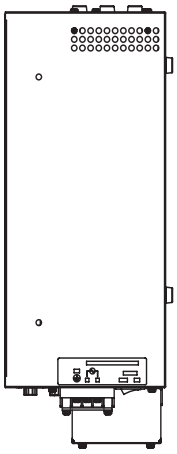
**1 When SW4 is ON and used together with a second RGB monitor, the screen display resolution is fixed to XGA.*

- When using Pro-face's FP Series, be sure to read that unit's User Manual prior to operation.
- When using a DVI-D monitor together with a second RGB monitor, some RGB monitors may not be able to be used, so please include a monitor test in your system testing.
- When using Pro-face's FP-DV01-50<5m> cable, use this dip switch's default setting.

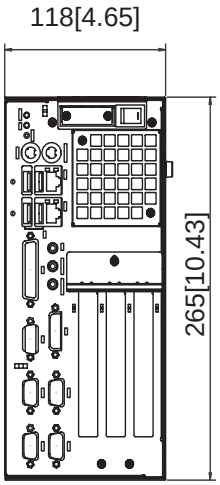
1.5 PS-B External Views and Dimensions

1.5.1 PS-B Unit

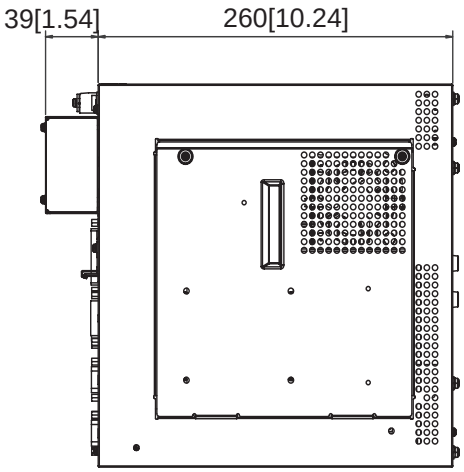
Unit: mm[in.]



Top



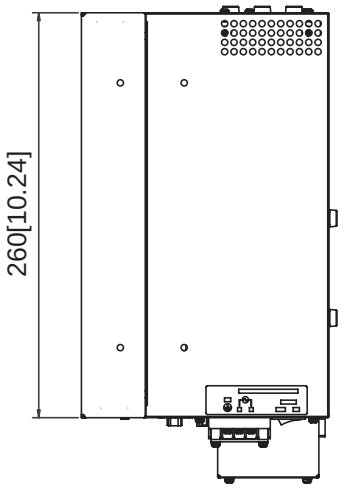
Front



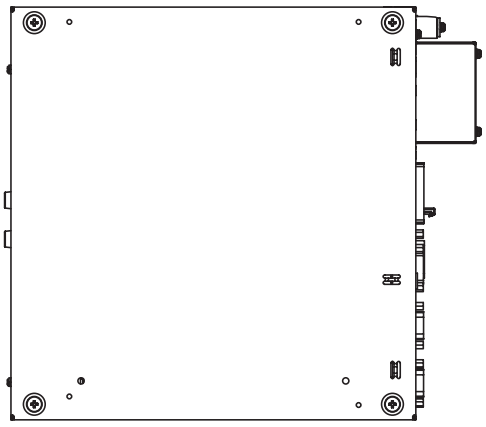
Side

1.5.2 With CD-ROM/FDD Unit Attached

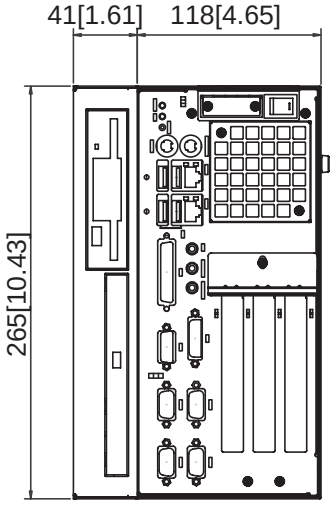
Unit: mm[in.]



Top



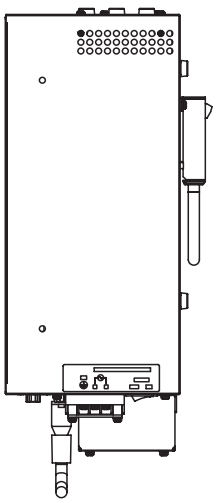
Side



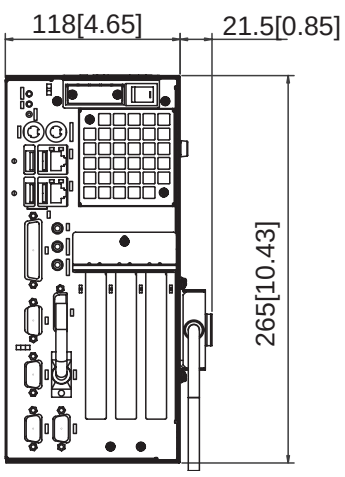
Front

1.5.3 With RS-232C/RS-485 Conversion Unit Attached

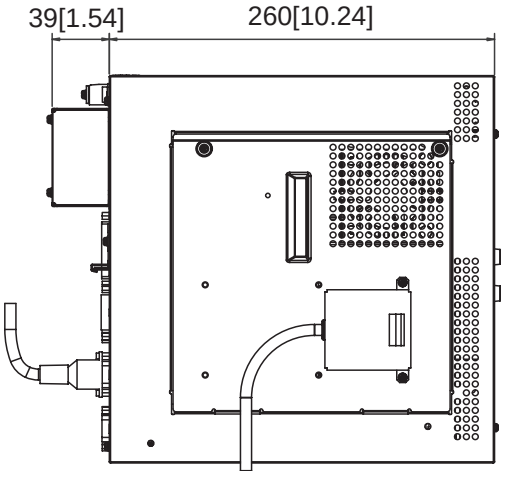
Unit: mm[in.]



Top



Front

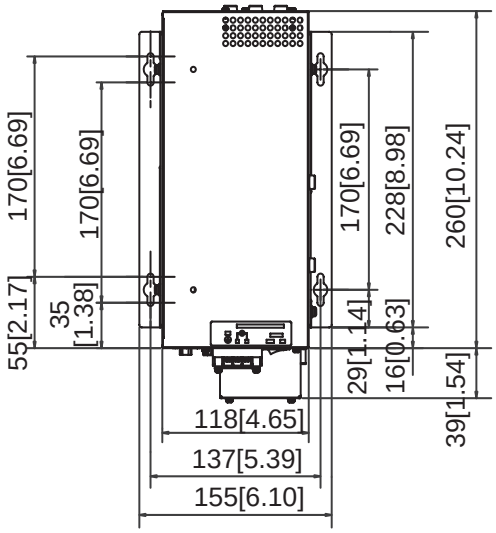


Side

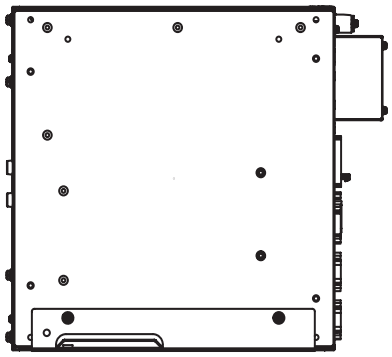
1.5.4 With Mounting Bracket Attached

■ Vertical Installation

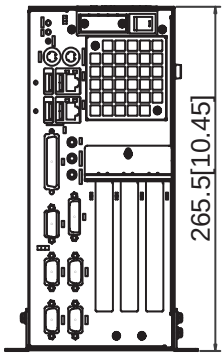
Unit: mm[in.]



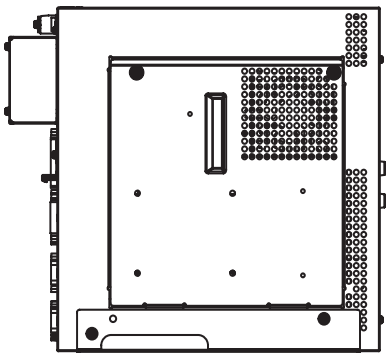
Top



Left



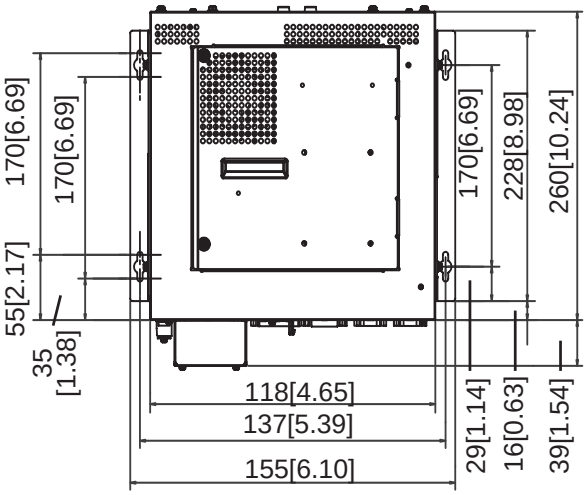
Front



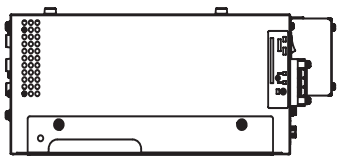
Right

■ Horizontal Installation

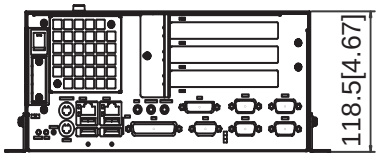
Unit: mm[in.]



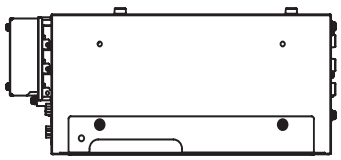
Top



Left

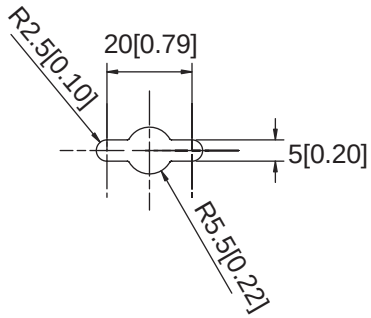


Front



Right

■ Magnified View of Mounting Bracket Installation Slot

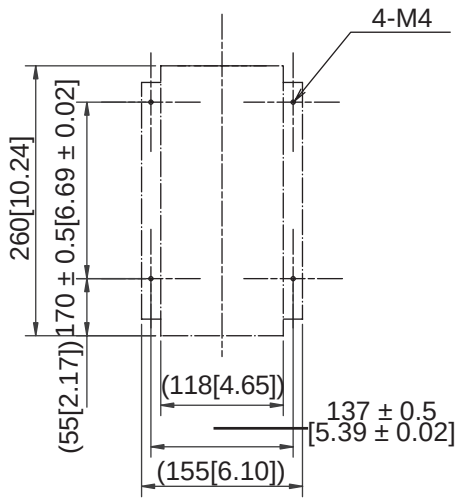


■ Attachment Bracket Attachment Screw Hole Dimensions

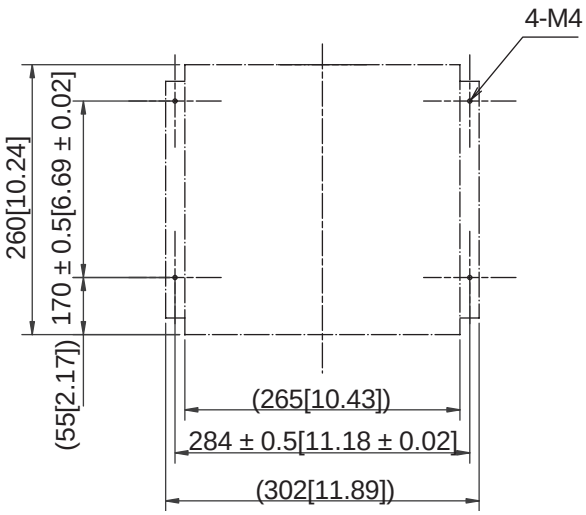
Use the following dimension drawing to drill the attachment bracket attachment screw holes in the installation panel. Use M4 size screws.

◆ Only PS-B Unit

Unit: mm[in.]



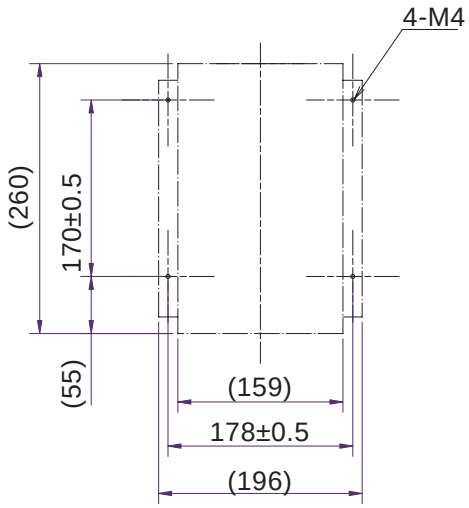
Vertical Installation



Horizontal Installation

◆ With CD-ROM/FD Units Attached

Unit: mm[in.]



Vertical Installation

Important

- **Depending on the panel's material and design, the panel's installation surface may need to be strengthened. If high levels of vibration are expected and the PS-B unit's installation surface (i.e. an operation panel's door, etc.) can move (i.e. open or close) due consideration should be given to the PS-B unit's weight.**

Reference *7.1.3 External Specifications*

1. Installing Optional Units and Expansion Boards
2. Installing the PS-B Unit
3. Wiring

Chapter 2 Hardware Installation

This chapter describes the installation of optional units and expansion boards, as well as the PS-B unit setup and wiring procedures.

2.1 Installing Optional Units and Expansion Boards

A wide variety of optional units and expansion boards (PCI bus compatible board *1) manufactured by Digital Electronics Corporation can be used with the PS-B.

Unscrew the four (4) cover attachment screws, and remove the cover. Install the desired unit and/or expansion board as shown in the "■ PS-B Internal View" drawing.

For the detailed optional unit installation procedures, refer to that unit's "Installation Guide".

⚠ WARNINGS

- **Be sure to disconnect the power cord from the power supply and confirm that power is not supplied to the PS-B unit before installing any optional units or expansion boards. Failure to do so can result in an electric shock.**

Important

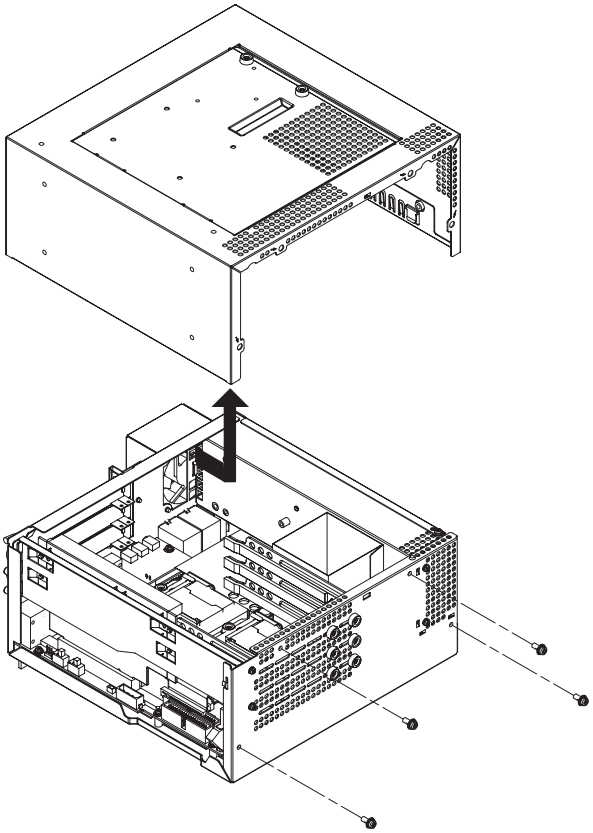
- **Use a screwdriver to loosen and tighten the screws. Be sure not to tighten the screws too tightly. Excessive force can damage the equipment.**
- **When removing or replacing screws, be careful that they do not fall inside the PS-B unit's chassis.**

1. *Including PCI 2.20.*

■ Removing the PS-B Unit's Cover

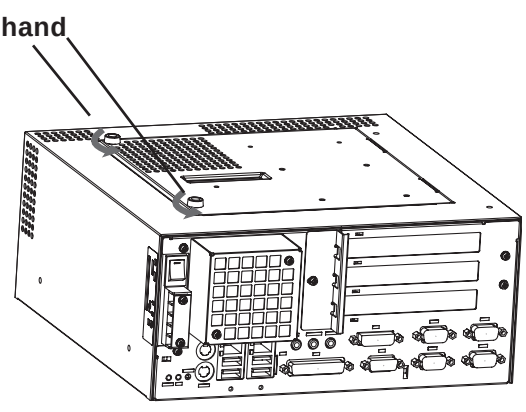
Lay the PS-B unit on its side and remove the four (4) cover attachment screws.

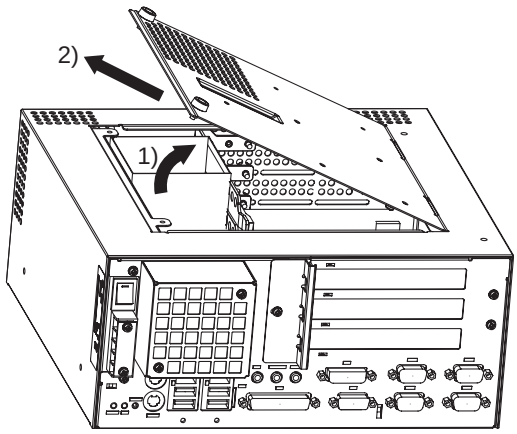
Slide the cover in the direction shown and then up to remove it. (When reattaching the screws, use a torque of 0.6 to 0.8N•m.)



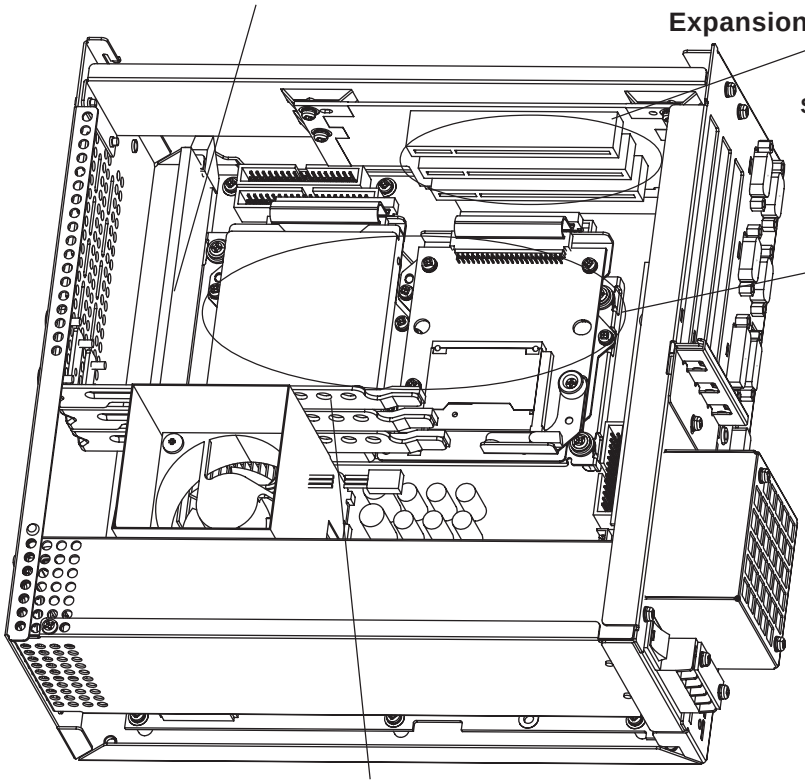
Note: Removing the rear face Maintenance Cover allows you to easily remove optional units and expansion boards. To remove this cover, unscrew the attachment screws (2), and lift up the cover. (See drawing below). (When reattaching the screws, use a torque of 0.5 to 0.6N•m.)

Can be removed by hand





■ PS-B Internal View

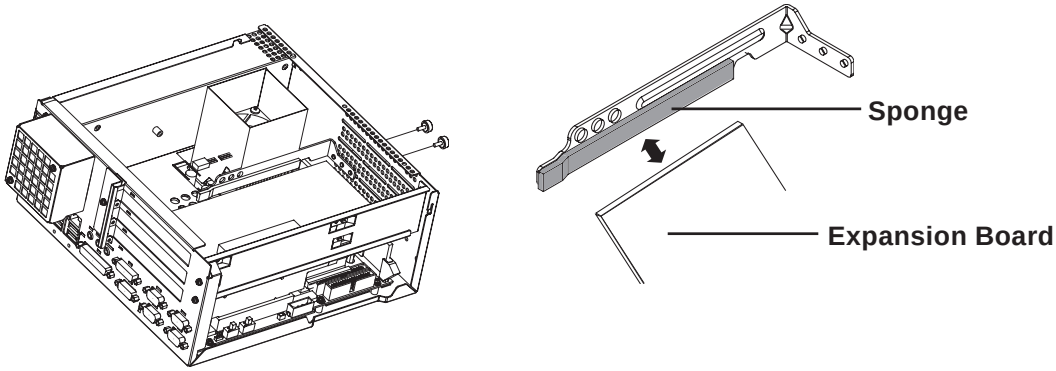

Expansion Board Interface
(From the bottom, SLOT1, SLOT2, SLOT3)
Unit Installation Area
The HDD and CF Card units are installed here.
Expansion Board Stays
These stays absorb vibration and hold the expansion boards in place.

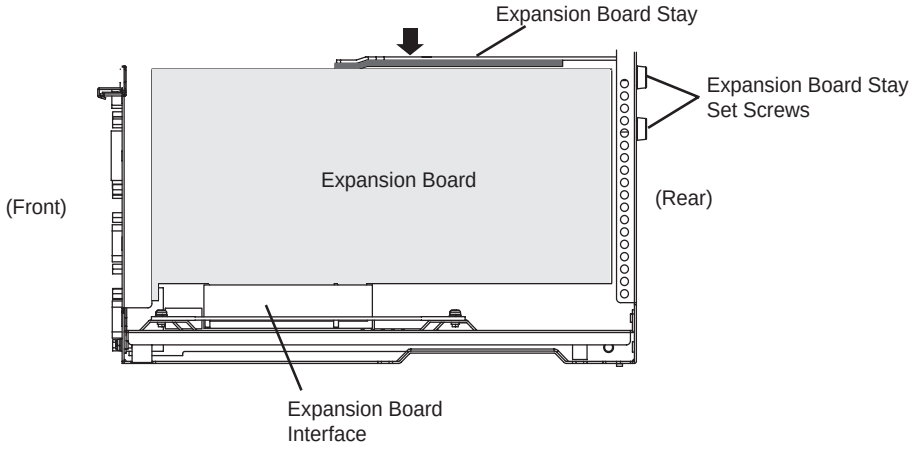
Reference ■ *Installing Expansion Board Stays*

■ Installing Expansion Board Stays

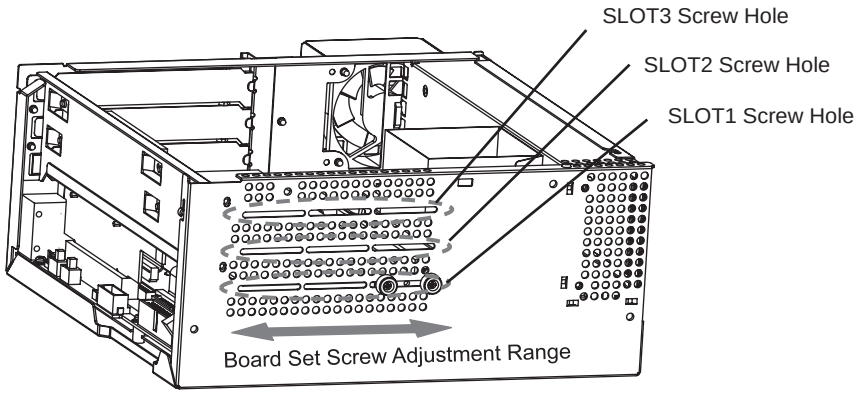
Each Expansion Board Stay is designed to support (brace) an Expansion Board. It will also reduce the amount of vibration that reaches the board.

Each stay has two (2) attachment screws. Prior to installing an expansion board, remove the stay's 2 attachment screws and remove the stay. Next, after the board is installed, position the Stay so that its sponge cushion is resting on top of the board. Reattach the Stay's 2 attachment screws and adjust the height of the Stay so that it is pushing down lightly on the board. Tighten both screws to secure the stay.





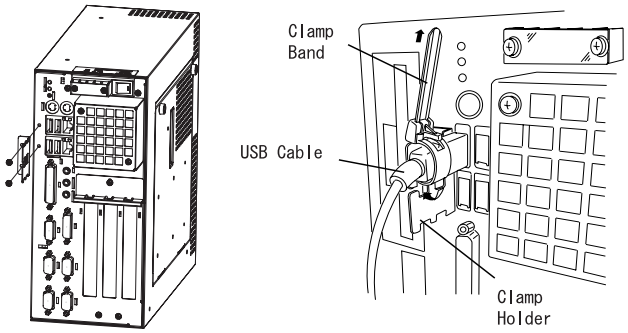
The Expansion Board Stay's position can be adjusted using the slotted openings in the cover. When the desired position is found, tighten the screws to secure the Stay in place.



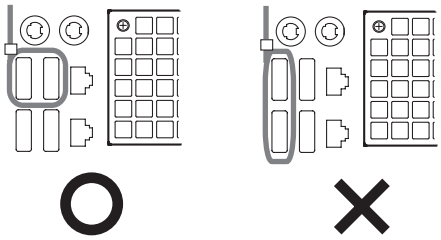
■ USB Cable Clamp Band

The PS-B unit's Cable Clamp Band is designed to prevent the USB connector from accidentally coming loose due to problems like vibration, bumping, etc.

Attach the clamp holder and clamp band as shown below to secure the connector in place.



Note: To use the Clamp Band with two cables, attach it as shown below. Be sure not to attach the band vertically.

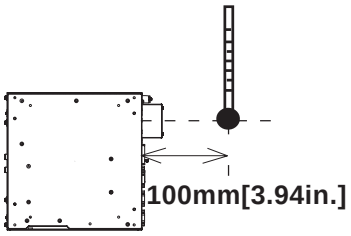


2.2 Installing the PS-B Unit

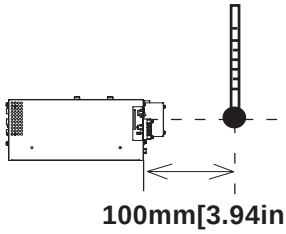
2.2.1 PS-B Unit Installation Cautions

■ Ambient Temperature

- The PS-B is designed for vertical installation and the cooling should be performed by a cooling fan instead of natural air circulation.
- Check the ambient temperature at the positions shown in the illustrations below. Temperatures exceeding the proper ambient temperature (5 to 50°C) may lead to product breakdown.



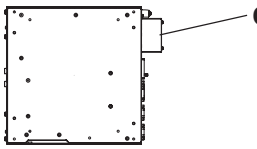
Installed Vertically



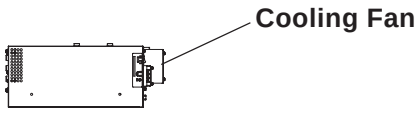
Installed Horizontally

■ Installation Angle

- Be sure and try to install the PS-B in an upright position in order to minimize the heat accumulation within the PS-B.



Installed Vertically



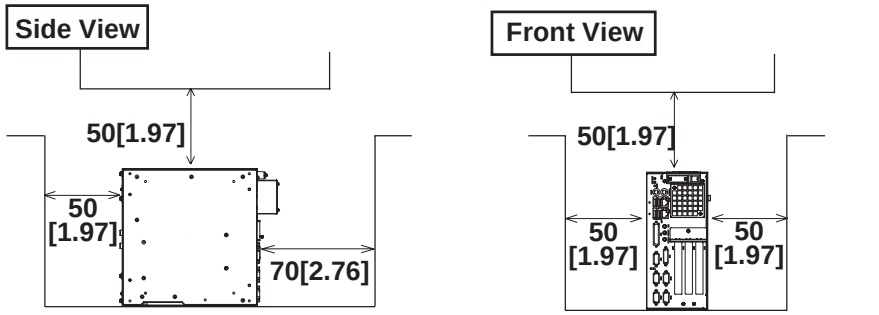
Installed Horizontally

■ Installation Area

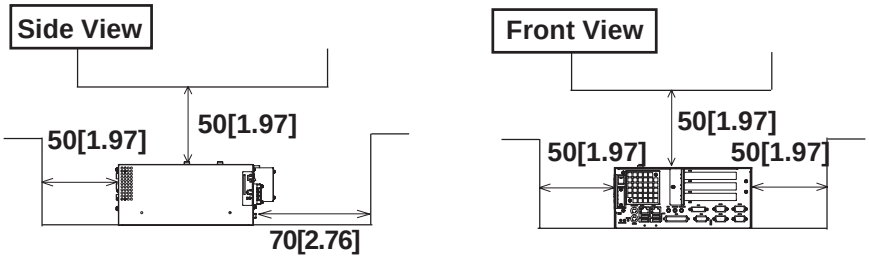
- Avoid overheating of the PS-B by not installing the unit near other heat-producing devices.
- Keep the PS-B away from arc-generating devices such as magnetic switches and non-fuse breakers.
- Avoid operating the PS-B in environments where corrosive gases are generated.
- To ensure maintainability, operability, and ventilation of the PS-B, be sure to allow a minimum of 50mm clearance between the PS-B and adjacent structure or equipment (70mm clearance is required to the side of a fan). Also, be sure to include sufficient clearance by considering the size and shape of connectors and space required for removing and inserting an expansion board while the PS-B is in the installed position.

◆ Installed Vertically

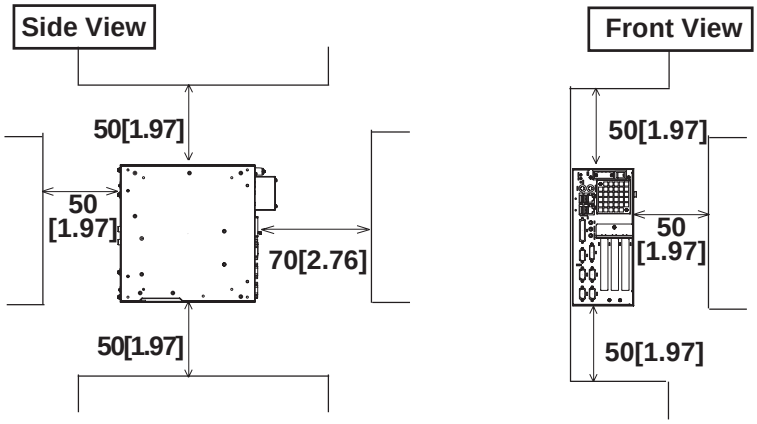
Unit: mm[in.]



◆ Installed Horizontally

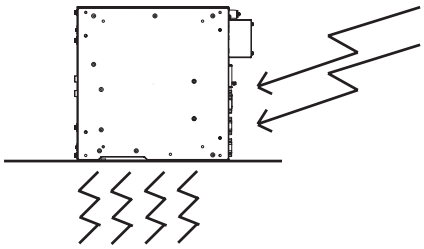


◆ Attached to Wall/Side of Panel



■ Vibrations and Shocks

- When moving the PS-B mounted on a rack on casters, excessive vibrations and physical shocks may exert on the hard disk drive. Be sure to take extra cautions in the handling.



PS-B Configuration	Vibration Endurance
With HDD unit	4.9 m/s^2
With CD-ROM/FDD unit	9.8 m/s^2
Without a drive	19.6 m/s^2

Important

- **The hard disk drive is a high-precision unit. Avoid subjecting it to sudden movement or shocks. Especially when the PS-B is turned ON, do not change the direction of the unit or reposition the unit , even when it is on a table. Doing so may cause a hard disk malfunction.**
- **When using a fan to provide forced-air cooling, be sure that streams of air do not blow directly on the hard disk. These streams may cause a hard disk malfunction.**

2.2.2 Installation Procedures

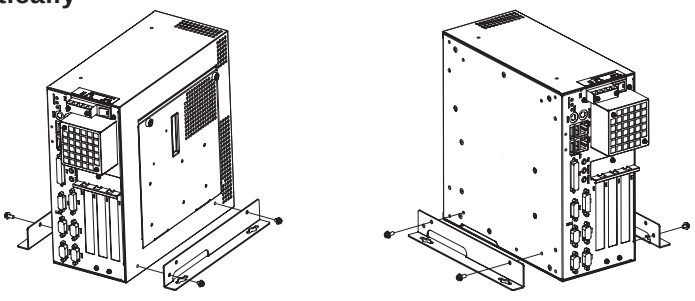
Important

Use the following procedures to install the PS-B on a panel.

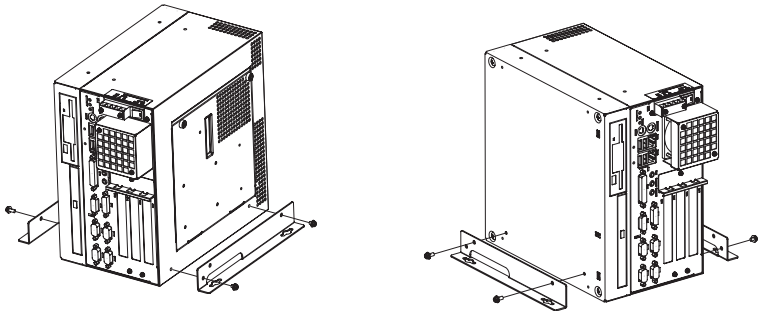
Before attempting the installation, be sure to read "PS-B Unit Installation Cautions" thoroughly to ensure safe and proper installation.

1. Attach the mounting bracket to the PS-B main unit by using the provided four (4) screws. Be sure that the mounting bracket is attached in the correct direction.

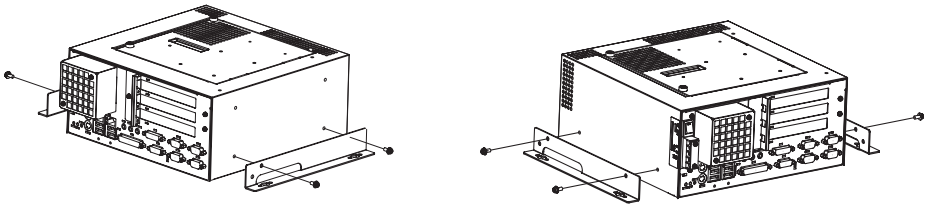
Installed Vertically



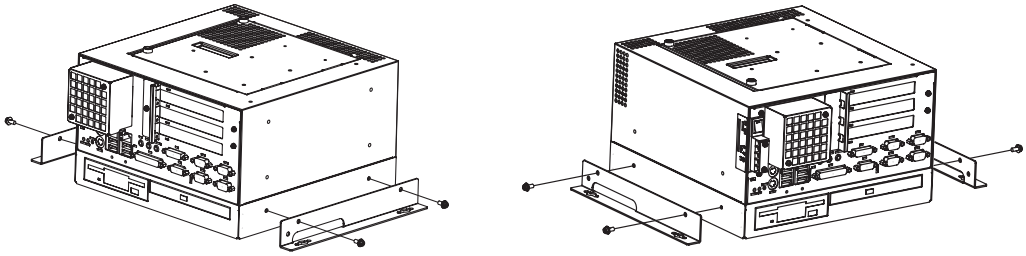
(With CD-ROM/FD drive unit attached)



Installed Horizontally



(With CD-ROM/FD drive unit attached)



Be sure not to use excessive force when tightening the screws. Product damage can result from over-tightening. The appropriate tightening torque is from 1.0 to 1.2 N•m.

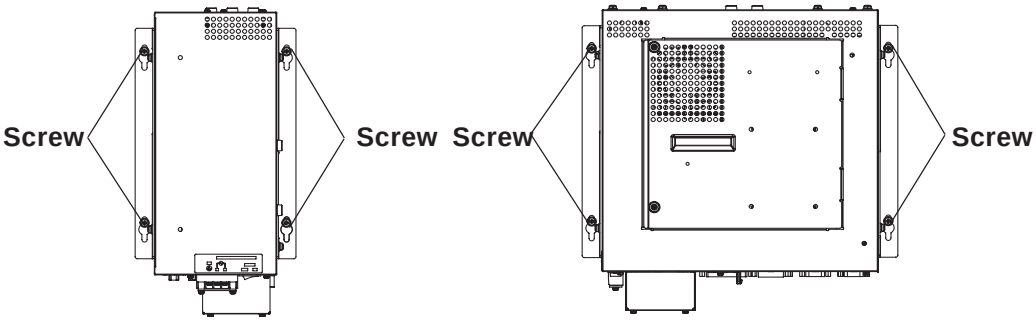
2. Drill installation screw holes in the panel.

   Be sure to follow the dimensions given for the installation slots and prepare, if necessary, the installation surface of the panel (i.e. attach supports, etc.).

   1.5.4 With Mounting Bracket Attached ■Attachment Bracket Attachment Screw Hole Dimensions

3. Attach the PS-B main unit to the panel using M4 screws.

   First, insert the screws to the installation holes on the panel. However, do not tighten the screws at this point. Next, install the PS-B unit in the panel by hanging the mounting bracket screws holes over the screw heads. Finally, tighten all mounting bracket screws to secure the PS-B unit in place.

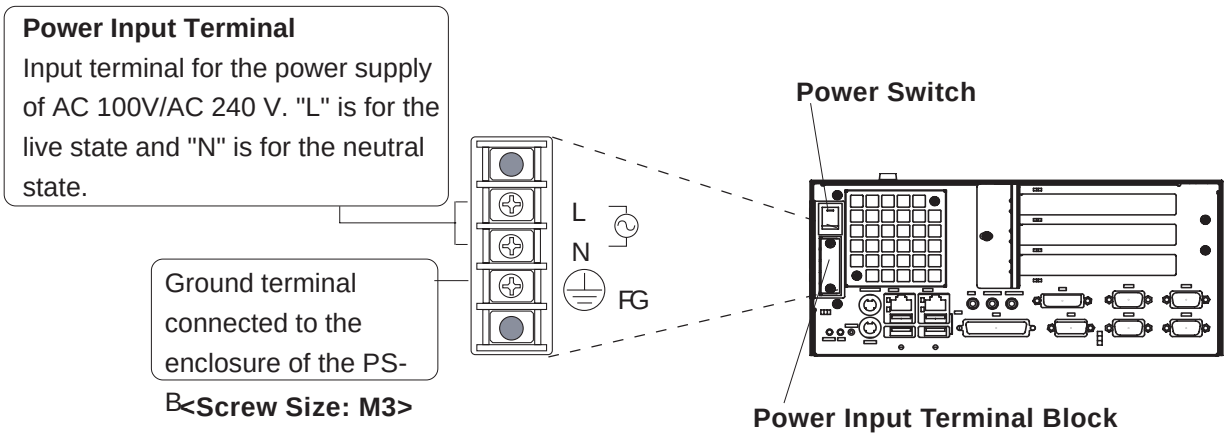


Installed Vertically **Installed Horizontally**

2.3 Wiring

2.3.1 Connecting the Power Cord

Connect the power cord to the power input terminal located on the front face of the PS-B unit.


Power Input Terminal
Input terminal for the power supply of AC 100V/AC 240 V. "L" is for the live state and "N" is for the neutral state.
Ground terminal connected to the enclosure of the PS-B
<Screw Size: M3>
L
N
FG
Power Switch
Power Input Terminal Block

Be sure to follow the procedure below to connect the power cord.

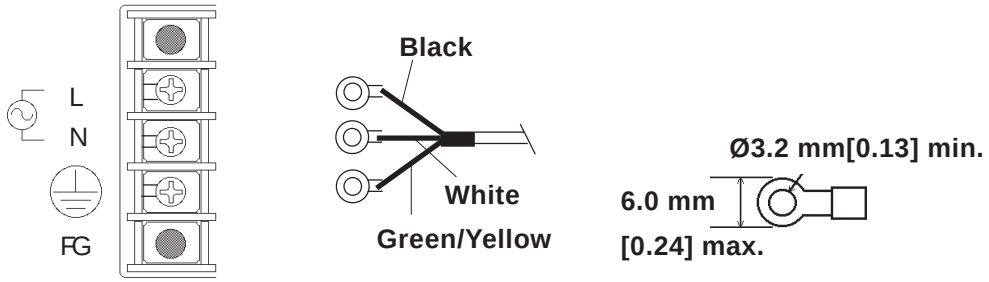
⚠ WARNINGS

- **Be sure that power is not being supplied to the PS-B when connecting the power cord; otherwise, electrical shocks or product breakdown may result.**
- **Be sure that the PS-B is operated under the rated power supply voltage; otherwise, a fire, electrical shock hazards, and product breakdown may result.**

(1) Be sure that the PS-B is turned off.

(2) Remove the terminal cover by using a Phillips screwdriver.

(3) Unscrew and remove the middle screws (3) from the terminal block. Next, align each crimp contact [*1] with its screw hole and tighten the screw.



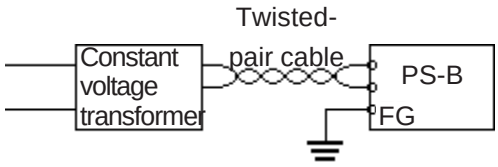
1. Recommended crimp contact: Equivalent of V1.25-3 manufactured by J.S.T. Mfg Co., Ltd.

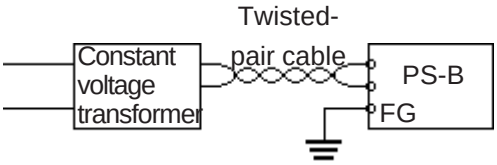
- Check the crimp contact cord and be sure to attach it to the correct position.
- The proper tightening torque is 0.5 N•m.
- To prevent the possibility of a crimp terminal short, use a crimp terminal that has an insulating sleeve.

(4) Reattach the terminal cover to the original position.

2.3.2 Power Supply Precautions

This section provides the precautions in supplying power to the PS-B. Be sure to take the precautions and connect the power cord to the power input terminal block on the rear face of the PS-B.



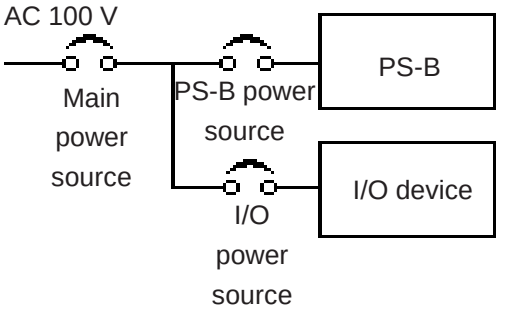


- If the expected voltage fluctuations exceed the specified range, connect a constant voltage transformer.

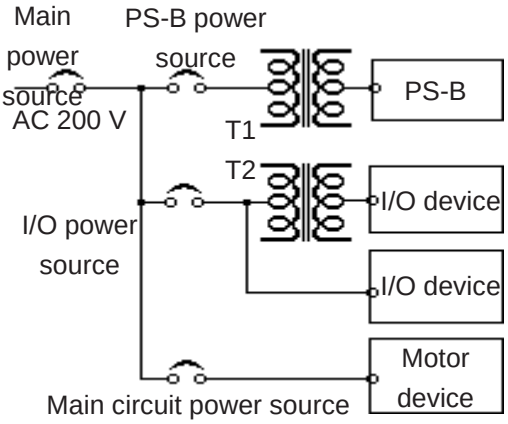
Reference *7.1 General Specifications*

- Use a low-noise power supply between the lines and between the PS-B and its ground. If there is excessive noise, connect an insulating transformer (noise-prevention type).

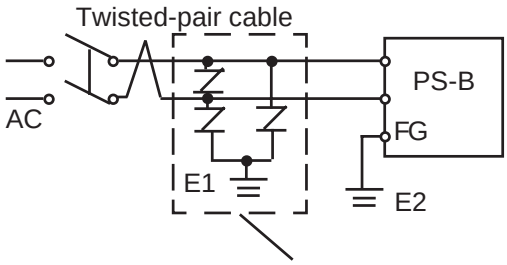
Note:
- Be sure to use a constant voltage transformer or insulating transformer with capacity of 200 VA or more.



- Wire the power supply of the PS-B separately from the wiring of I/O and motor devices.



- In order to improve the noise immunity, attaching a ferrite core to the power cord is recommended.
- Isolate the main circuit (high voltage and large current) line, I/O signal lines, and power cord, and do not bind or bring then in close contact.



Lightning surge absorber

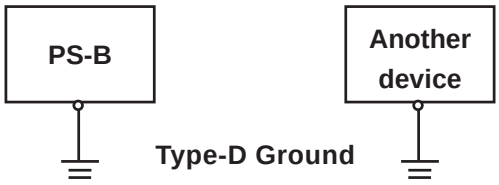
- As the countermeasures for surge from lightning, connect a lightning surge absorber.

Important

- **Ground the lightning surge absorber (E1) and the PS-B (E2) separately**
- **Select a lightning surge absorber that will not exceed the maximum allowable circuit voltage, even when the power supply voltage rises to the maximum.**

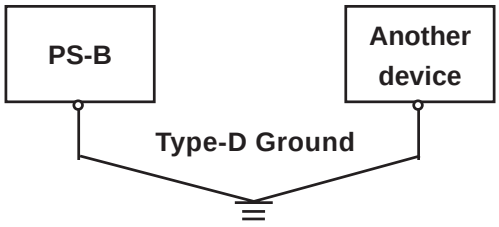
2.3.3 Grounding Precautions

(a) Dedicated Ground: Optimal



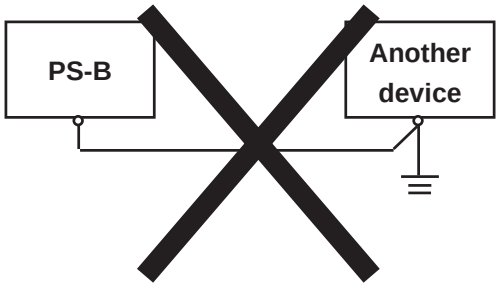
- Designate the ground from the FG terminal on the rear face of the PS-B as a dedicated ground as illustrated in figure (a).

(b) Shared Ground: Acceptable



- If a dedicated ground cannot be provided, use a shared ground as illustrated in figure (b).
- Be sure to use grounding wire of 2 mm^2 or thicker. The grounding point should be as close to the PS-B as possible to make the grounding wires as short as possible. When the grounding wire should be long, use thick, insulated wires and lay the wires through conduits.

(c) Shared Ground: Not acceptable



- FG and SG are connected inside the PS-B main unit. When connecting with other device, designate the system configuration so that it won't form a SG short-circuit loop.

2.3.4 Precautions When Connecting I/O Signal Lines

- Be sure to lay the I/O signal lines separately from the cable of the motor circuit system.
- If the motor circuit cable cannot be wired as a separate system, use shielded cables and ground one end of the shield to the FG terminal of the PS-B.
- In order to improve the noise immunity, attaching a ferrite core to the power cord is recommended.

3.1 Setup Procedures
3.2 System Parameters

Chapter 3 System Setup

This chapter explains how to enter the PS-2000B Series Unit's system settings, as well as the cautions required both before and during set up.

3.1 Setup Procedures

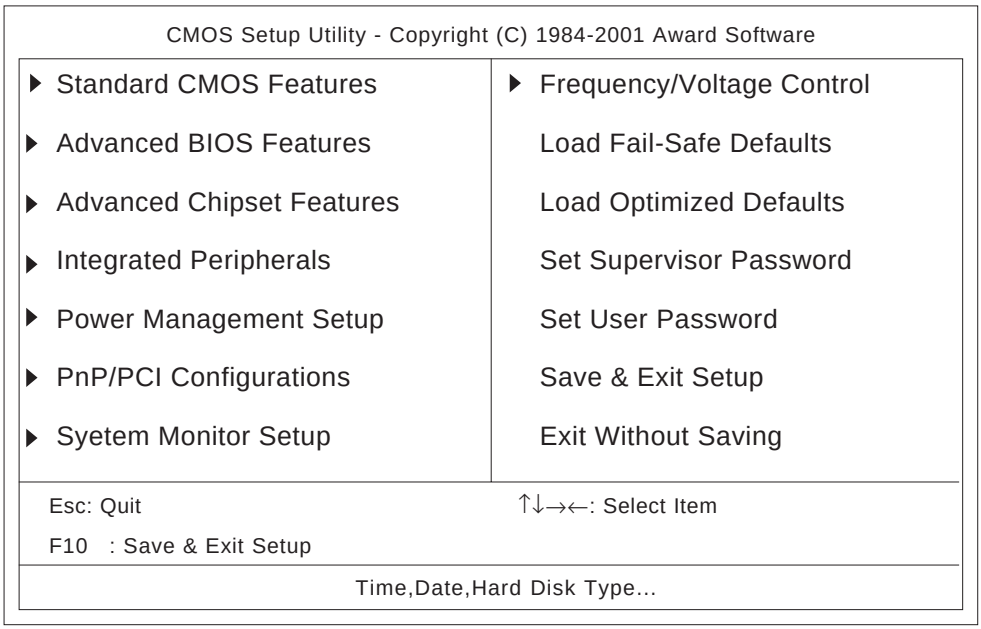
Normally, use only the factory (default) settings.

The following settings are those pre-set at the factory.

1) Connect a keyboard to the PS-B.

2) Turn the PS-B's power ON.

3) After the message "Press <DEL> to Enter SETUP" appears, press the [DEL] key until the following screen appears.



KEYBOARD ACTION KEYS
Provides a summary of the keyboard keys used to carry out the set up.

SYSTEM SETTING SELECTION AREA
Each of the titles (areas) listed here contains system setting items.

4) Use the arrow keys to move the cursor to the desired selection.

3.2 System Parameters

3.2.1 Standard CMOS Features

Normally, use only the factory (default) settings.

Selecting the STANDARD CMOS FEATURES menu item produces the following screen.

```
Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy):          Tue,Jul 2 2001          | Item Help
Time (hh:mm:ss):          14 : 50 : 3             |
                                                  | Menu Level ▶
▶ IDE Primary Master      [None]                  |
▶ IDE Primary Slave       [None]                  | Change the day, month,
▶ IDE Secondary Master    [None]                  | year and century
▶ IDE Secondary Slave     [None]                  |
                                                  |
Drive A                   [None]                  |
Drive B                   [None]                  |
                                                  |
Video                     [EGA/VGA]               |
Halt On                   [All,But Keyboard]      |
                                                  |
Base Memory               640K                    |
Externded Memory          129024K                 |
Total Memory              130048K                 |

↑↓→←: Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
F5:Previous Values  F6:Fail-Safe Defaults  F7:Optimized Defaults
```

- **Date (mm:dd:yy)**
  The PS-B unit's internal calendar and clock allow you to set the date. The day of the week is automatically set. The mm/dd/yy (Jan. 1, 2002) format is factory set prior to shipping.

  Month: Jan/Feb/Mar/Apr/May/Jun/Jul/Aug/Sep/Oct/Nov/Dec

  Day:1 to 31

  Year: 1999 to 2099

- **Time (hh:mm:ss)**
  The PS-B unit's internal clock can be set.The hh/mm/ss (0:0:0) format is factory set prior to shipping.

  Hours: 0 to 23

  Minutes: 0 to 59

  Seconds: 0 to 59

- **IDE Primary (Secondary) Master (Slave)**
  Displays the name of the IDE type Hard Disk connected to the PS-B. Pressing the [Enter] key will call up the Parameter settings menu. For details, refer to ***3.2.2 IDE HDD Auto Detection***

Drive A (B)

This setting determines the format used by the PS-B's internal floppy disk drive. The available settings are [None], [360K - 5.25in], [720K - 3.5in], [1.44M - 3.5in], or [2.88M, 3.5in]. The factory settings are Drive A [None] and Drive B [None] and recommended for most users.

Video

The selections for the screen (video) mode. The available settings are [EGA/VGA], [CGA40], [CGA80] and [MONO]. The [EGA/VGA] selection is factory set and recommended for most users.

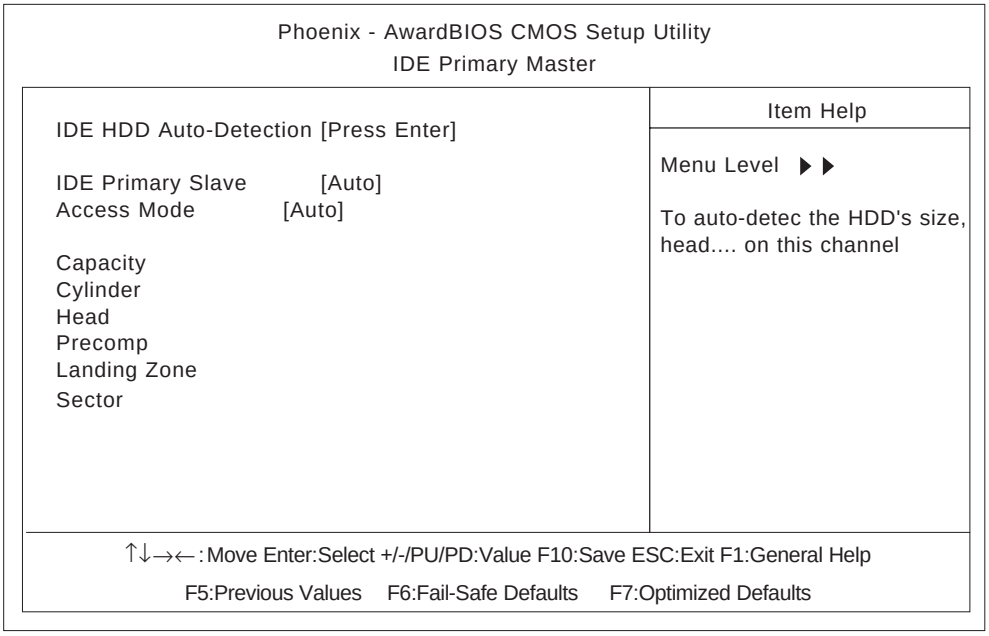
Halt On

Designates the type of processing that will be performed when an error occurs during the Initial Start-Up's Self Test. The [All But Keyboard] selection is factory set and recommended for most users.

[All Errors]	:	Displays all errors and stops the unit.
[No Errors]	:	Displays all errors and does not stop the unit.
[All,But Keyboard]	:	Displays all errors, except for those related to the keyboard, and stops the unit.
[All,But Diskette]	:	Displays all errors, except for those related to the disk drive (FDD), and stops the unit.
[All,But Disk/Key]	:	Displays all errors, except for those related to the disk drive (FDD) and keyboard, and then stops the unit.

3.2.2 IDE HDD Auto-Detection

Selecting either [IDE Primary (Secondary) Master] or [IDE Primary (Secondary) Slave] will call up the following menu. The following example uses the [IDE Primary Master] setting.



- **IDE HDD Auto-Detection**

  This setting detects the hard disk connected to the IDE interface.

- **IDE Primary (Secondary) Master (Slave)**

  This setting designates the IDE type Hard Disk's parameter setting method. The available settings are [None], [Auto], or [Manual]. The factory default setting is [Auto] and is recommended for most users.

- **Access Mode**

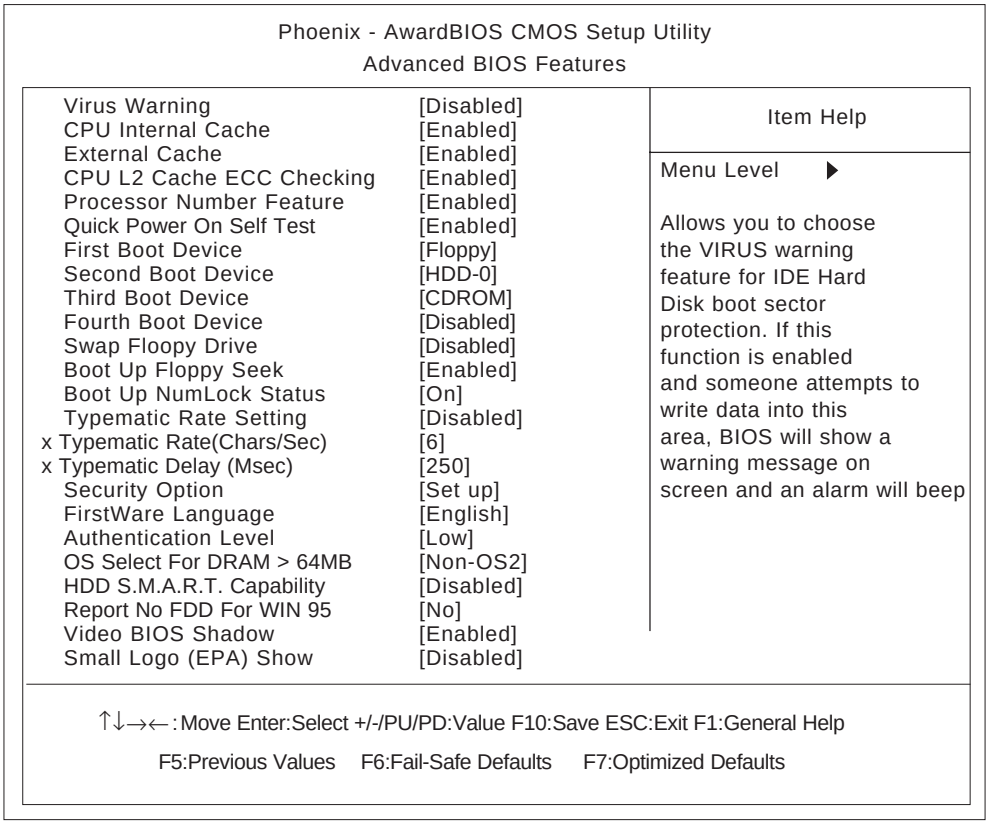
  This setting designates the IDE type Hard Disk's access mode. The available settings are [CHS], [LBA], [Large], or [Auto]. The factory default setting is [Auto] and is recommended for most users.

- **Capacity/Cylinder/Head/Precomp/Landing Zone/ Sector**

  These settings designate individual IDE-type Hard Disk parameter settings. When the [IDE Primary (Secondary) Master (Slave)] setting is set to [Manual], the Access Mode must be [CHS]. When the [IDE Primary (Secondary) Master (Slave)] setting is set to [Auto], these values are automaticaly detected. [Capacity] is set automaticaly.

3.2.3 Advanced BIOS Features

Selecting the ADVANCED BIOS FEATURES menu item calls up the following screen.


Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features
Virus Warning [Disabled]
CPU Internal Cache [Enabled]
External Cache [Enabled]
CPU L2 Cache ECC Checking [Enabled]
Processor Number Feature [Enabled]
Quick Power On Self Test [Enabled]
First Boot Device [Floppy]
Second Boot Device [HDD-0]
Third Boot Device [CDROM]
Fourth Boot Device [Disabled]
Swap Floopy Drive [Disabled]
Boot Up Floppy Seek [Enabled]
Boot Up NumLock Status [On]
Typematic Rate Setting [Disabled]
x Typematic Rate(Chars/Sec) [6]
x Typematic Delay (Msec) [250]
Security Option [Set up]
FirstWare Language [English]
Authentication Level [Low]
OS Select For DRAM > 64MB [Non-OS2]
HDD S.M.A.R.T. Capability [Disabled]
Report No FDD For WIN 95 [No]
Video BIOS Shadow [Enabled]
Small Logo (EPA) Show [Disabled]
Item Help
Menu Level ▶
Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempts to write data into this area, BIOS will show a warning message on screen and an alarm will beep
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **Virus Warning**

  This setting determines whether to display a warning when a write to the HDD's start-up sector is attempted. The available settings are [Enabled] or [Disabled]. The factory default setting is [Disabled] and is recommended for most users.

- **CPU Internal Cache**

  This setting determines the usage of the CPU's internal cache memory. The available settings are [Disabled] or [Enabled]. The factory default setting is [Enabled] and is recommended for most users.

- **External Cache**

  This setting enables/disables external cache memory. The available settings are [Disabled] or [Enabled]. The factory default setting is [Enabled] and is recommended for most users.

- **CPU L2 Cache ECC Checking**

  This setting turns ON or OFF external(L2) SEcondary Cache Memory's ECC (Error Check Correction). The available settings are [Disabled] and [Enabled]. The factory default setting is [Enabled] and is recommended for most users.

■ **Processor Number Feature**

This option appears only when the CPU is a Pentium® III processor. If this setting is set to Enabled, it will check the CPU's serial number. If you do not need to know the serial number, set this option to [Disabled]. If this is turned ON, use the "Serial Number Control Program" found on Intel's web site to perform the check.

■ **Quick Power On Self Test**

This setting determines whether the quick self test is performed when the power is turned on. The available settings are [Disabled] or [Enabled]. The factory default setting is [Enabled] and is recommended for most users.

■ **First/ Second/ Third/ Fourth Boot Device**

The selections for the search drive sequence of the operating system. The available settings are [Floppy], [LS120], [HDD-0], [SCSI], [CDROM], [HDD-1], [HDD-2], [HDD-3], [ZIP100], [USB-FDD], [USB-ZIP], [USB-CDROM], [USB-HDD], [LAN], and [Disabled]. Factory settings are: First: [Floppy], Second: [HDD-0], Third: [CDROM], Fourth: [Disabled].

■ **Swap Floppy Drive**

This setting swaps Drives A and B. The available settings are [Disabled] or [Enabled]. The factory default setting is [Disabled] and is recommended for most users.

■ **Boot Up Floppy Seek**

The setting checks whether the floppy disk drive is installed during the system boot-up process. The available settings are [Disabled] or [Enabled]. The factory default setting is [Enabled] and is recommended for most users.

■ **Boot Up Numlock Status**

This setting specifies the Numlock key status upon the startup. The available settings are [On] and [Off]. The factory default setting is [On] and is recommended for most users.

■ **Typematic Rate Setting**

The setting specifies the keyboard speed used when repeating characters.
The available settings are [Enabled] and [Disabled]. The factory default setting is [Disabled] and is recommended for most users.

■ **Typematic Rate (Chars/ Sec)**

This setting specifies the actual typematic rate (repeated character input per second) when the [Typematic Rate Setting] option is set to [Enabled]. The settings are used to determine how many repeats are performed in one second. The factory default setting is [6] and is recommended for most users.

■ **Typematic Delay (Msec)**

When [Typematic Rate Setting] is set to [Enabled], this setting determines the delay period until the initial repetition is started. The [250] selection is factory set and is recommended for most users.

■ **Security Option**

This setting designates the area to request a password. If a password needs to be entered, select [Setup] in BIOS setup, or [System] during system startup. This setting is NOT available if the password is not set in the [SET SUPERVISOR PASSWORD] or [SET USER PASSWORD] areas. The factory default setting is [Setup] and is recommended for most users.

[SET SUPERVISOR PASSWORD] Reference **3.2.14 Set Supervisor Password**

[SET USER PASSWORD] Reference **3.2.15 Set User Password**

■ **FirstWare Language**

This PS Series unit does not contain the FirstWare Language selection. Plese do not set/use this setting.

■ **Authentication Level**

Selections can be [High], [Medium], or [Low]. Factory setting is [Low].

■ **OS Select For DRAM > 64MB**

The available settings are [Non-OS2] and [OS2]. The factory default settting is [Non-OS2] and is recommended for most users.

■ **HDD S.M.A.R.T Capability**

This feature enables/disables the HDD unit's SMART (Self-Monitoring Analysis and Reporting Technology) feature. The available selections are [Enabled] and [Disabled], [Disabled] is factory set and recommended for most users.

■ **Report No FDD For WIN 95**

This setting determines if the FDD node is reported by BIOS to WIN95. The available settings are [No] and [Yes]. The factory default setting is [No] and is recommended for most users.

■ **Video BIOS Shadow**

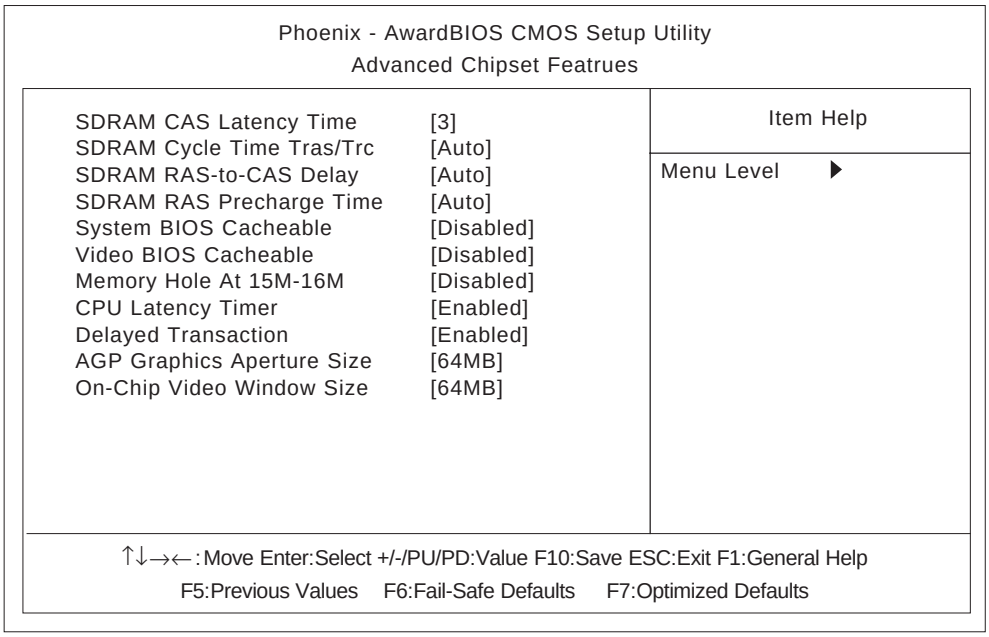
This feature enables/disables copying of Video BIOS to RAMF (video accellerator). The available selections are [Enabled] and [Disabled], [Enabled] is factory set and recommended for most users.

■ **Small Logo (EPA) Show**

Enables/disables the initial display at startup of the EPA logo. The available selections are [Enabled] and [Disabled], [Disabled] is factory set and recommended for most users.

3.2.4 Advanced Chipset Features

Selecting the ADVANCED CHIPSET FEATURES menu item calls up the following screen.


Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Featrues
SDRAM CAS Latency Time [3]
SDRAM Cycle Time Tras/Trc [Auto]
SDRAM RAS-to-CAS Delay [Auto]
SDRAM RAS Precharge Time [Auto]
System BIOS Cacheable [Disabled]
Video BIOS Cacheable [Disabled]
Memory Hole At 15M-16M [Disabled]
CPU Latency Timer [Enabled]
Delayed Transaction [Enabled]
AGP Graphics Aperture Size [64MB]
On-Chip Video Window Size [64MB]
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **SDRAM CAS Latency Time**
  Designates the clock counts used, from the enabling of CAS to the start of the burst transmission. Can be set to either [3] or [2]. Factory default setting is [3] and strongly recommended for most users.

- **SDRAM Cycle Time Trans/Trc**
  Designates the number of SLCK's for an access cycle, i.e. the minumum required time from when a bank is activated to the activation of an identical bank. Settings are [7/9], [5/7] or [Auto]. Factory default setting is [Auto] and strongly recommended for most users.

- **SDRAM RAS-to-CAS Delay**
  Designates the timing delay used between RAS and CAS strobe signals. Settings are [2], [3], or [Auto]. Factory default setting is [Auto] and strongly recommended for most users.

- **SDRAM RAS Precharge Time**
  Designates the pre-charge time value used, to allow RAS to accumulte its charge before DRAM refresh. Settings are [2], [3], or [Auto]. Factory default setting is [Auto] and strongly recommended for most users.

- **System BIOS Cacheable**
  Sets whether the System BIOS' Cache is used or not. When the OS is set to use this cache, the PS-B unit's processing speed will increase. Settings available are [Enabled] and [Disabled]. The factory setting is [Disabled] and is recommended for most users.

Video BIOS Cacheable

Sets whether the Video BIOS Cache is used or not. Settings available are [Enabled] and [Disabled]. The factory setting is [Disabled]. When this feature is [Enabled], the BIOS ROM range available for caching is from C0000h - F7FFFh, which will improve video performance. However, if another program tries to write to this area of memory, a system error may occur.

Memory Hole At 15M-16M

This setting determines whether to designate the memory space from 15MB to 16MB as the buffer area for the ISA bus card. The available settings are [Disabled] and [Enabled]. The factory default setting is [Disabled] and is recommended for most users.

CPU Latency Timer

If Enabled, a deferrable CPU cycle will only be Deferred after it has been in a Snoop Stall for 31 scans and another ADS# has arrived. If Disabled, changeable CPU cycles will be changed after an ADS number is received.

Delayed Transaction

Designates the length of the pre-charge time. The available settings are [Enabled] and [Disabled]. The factory default setting is [Enabled] and is recommended.

AGP Graphics Aperture Size

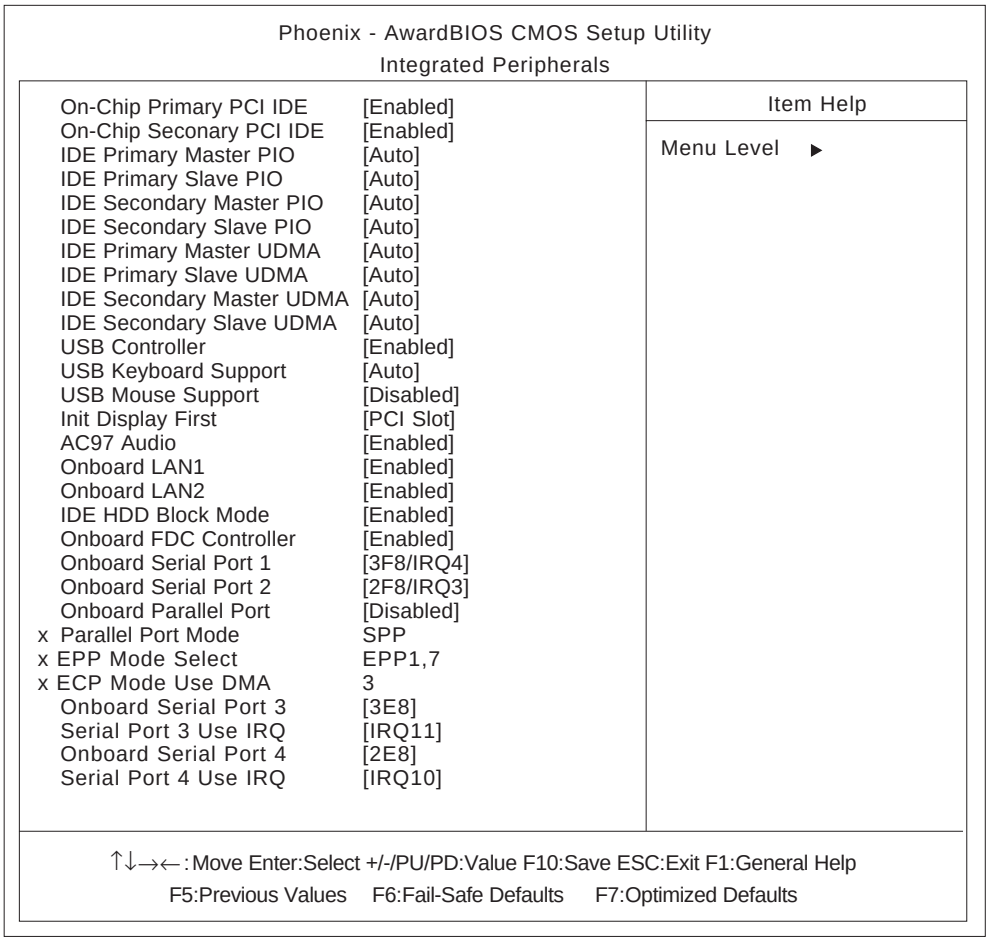
Designates the address range used for PCI memory addresses allocated to AGP graphic memory. The available settings are [64MB] or [32MB]. [64MB] is the factory setting.

On-Chip Video Window Size

Designates the on-chip video window size used by the VGA driver. The available settings are [Disabled] and [64MB]. The factory default setting is [64MB] and is recommended for most users.

3.2.5 Integrated Peripherals

Selecting INTEGRATED PERIPHERALS SETUP menu item Displays the following screen.


Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals
On-Chip Primary PCI IDE [Enabled]
On-Chip Seconary PCI IDE [Enabled]
IDE Primary Master PIO [Auto]
IDE Primary Slave PIO [Auto]
IDE Secondary Master PIO [Auto]
IDE Secondary Slave PIO [Auto]
IDE Primary Master UDMA [Auto]
IDE Primary Slave UDMA [Auto]
IDE Secondary Master UDMA [Auto]
IDE Secondary Slave UDMA [Auto]
USB Controller [Enabled]
USB Keyboard Support [Auto]
USB Mouse Support [Disabled]
Init Display First [PCI Slot]
AC97 Audio [Enabled]
Onboard LAN1 [Enabled]
Onboard LAN2 [Enabled]
IDE HDD Block Mode [Enabled]
Onboard FDC Controller [Enabled]
Onboard Serial Port 1 [3F8/IRQ4]
Onboard Serial Port 2 [2F8/IRQ3]
Onboard Parallel Port [Disabled]
x Parallel Port Mode SPP
x EPP Mode Select EPP1,7
x ECP Mode Use DMA 3
Onboard Serial Port 3 [3E8]
Serial Port 3 Use IRQ [IRQ11]
Onboard Serial Port 4 [2E8]
Serial Port 4 Use IRQ [IRQ10]
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **On-Chip Primary (Secondary) PCI IDE**
  Designates the internal IDE port's setting. The two selections available are [Disabled] and [Enabled]. The [Enabled] selection is factory set and recommended for most users.
- **IDE Primary (Secondary) Master (Slave) PIO**
  Designates the Primary (Secondary) Master Drive's PIO (Programmed Input/ Output) Operation Mode. The selections available are [Auto], [Mode0], [Mode1], [Mode2], [Mode3], or [Mode4]. The [Auto] selection is factory set and recommended for most users.
- **IDE Primary (Secondary) Master (Slave) UDMA**
  Designates the Primary (Secondary) Master Drive's UDMA Operation Mode. The two selections available are [Auto] or [Disabled]. The [Auto] selection is factory set and recommended for most users.
- **USB Controller**

  Select [Enabled] or [Disable] when attaching a USB device. The [Disabled] selection is factory set and recommended for most users. When using the USB I/F or the USB connector for connecting the touch panel, set this item to “Enabled”.

- **USB Keyboard Support**

  Select [Enabled] or [Disable] if your system contains a USB controller and you wish to use a USB keyboard. The available settings are [Disabled] and [Enabled]. The factory default setting is [Auto]. If, however, the USB Controller is set to [Disabled], this setting cannot be changed.

- **USB Mouse Support**

  This setting allows you to connect a USB mouse, even if the OS does not support it. It allows the BIOS to use a mouse driver and treats the mouse as if it were a PS/2 type mouse.The available settings are [Disabled] and [Enabled]. The factory default setting is [Auto]. If, however, the USB Controller is set to [Disabled], this setting cannot be changed.

- **Init Display First**

  When both a PCI and an AGP display boards are installed, this setting designates which will have first priority. Settings are [PCI slot] or [Onboard/AGP]. The factory default setting is [PCI slot].

- **AC97 Audio**

  Enables or disables the 810 chipset support for AC97 Audio. The available settings are [Disabled] or [Auto]. The factory default setting is [Auto].

- **Onboard LAN 1 (2)**

  Disables/enables the LAN connector. The available settings are [Disabled] and [Enabled]. The factory default setting is [Enabled].

- **Internal EDID**

  The available settings are [Disabled] and [Enabled]. The factory default setting is [Disabled].

- **IDE HDD Block Mode**

  This setting determines whether to enable the Block Mode on the HDD supporting the Block Mode. The available settings are [Disabled] and [Enabled]. The factory default setting is [Enabled] and is recommended for most users.

- **Onboard FDC Controller**

  Designates whether the PS-B's FDD(Floppy Disk Drive) controller is enabled or disabled. Settings available are [Disabled] or [Enabled]. The [Enabled] selection is factory set.

- **Onboard Serial Port 1**

  Designates the PS-B's Serial Port 1 I/O address. The selections include [Disabled], [Auto], [3F8/IRQ4], [2F8/IRQ3], [3E8/IRQ4] and [2E8/IRQ3]. The [3F8/IRQ4] selection is factory set and recommended for most users.

- **Onboard Serial Port 2**

  Designates the PS-B's Serial Port2 I/O address. The selections include [Disabled], [Auto], [3F8/IRQ4], [2F8/IRQ3], [3E8/IRQ4] and [2E8/IRQ3]. The [2F8/IRQ3] selection is factory set and recommended for most users.

■ **Onboard Parallel Port**

Normally not used. The [Disabled] selection is factory set and recommended for most users.

■ **Parallel Port Mode**

Normally not used.

■ **EPP Mode Select**

Normally not used.

■ **ECP Mode Use DMA**

Normally not used.

■ **PWRON After PWR-Fail**

This feature is not supported.

■ **Onboard Serial Port 3**

Designates the interupt number for the PS-B's on-board Serial Port3. The selections include [3F8], [2F8], [3E8] or [2E8]. The [3E8] selection is factory set and recommended for most users.

■ **Serial Port 3 Use IRQ**

Designates the interupt number for the PS-B's on-board Serial Port3.The selections include [IRQ9], [IRQ10], [IRQ11] or [IRQ15]. The [IRQ11] selection is factory set and recommended for most users.

■ **Onboard Serial Port 4**

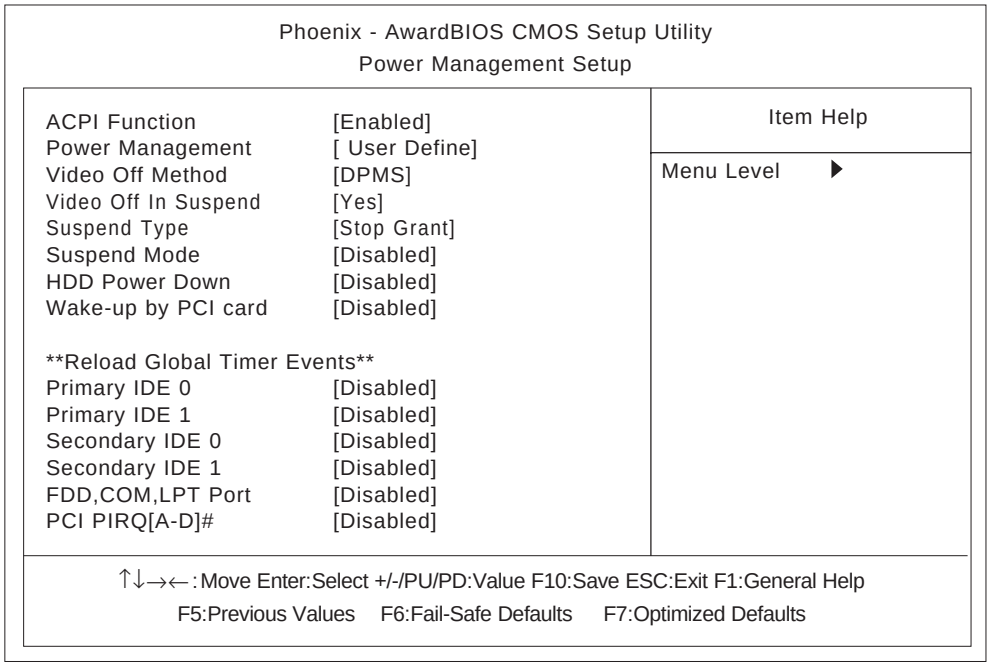
Designates the interupt number for the PS-B's on-board Serial Port4. The selections include [3F8], [2F8], [3E8] or [2E8]. The [2E8] selection is factory set and recommended for most users.

■ **Serial Port 4 Use IRQ**

Designates the interupt number for the PS-B's on-board Serial Port4. The selections include [IRQ9], [IRQ10], [IRQ11] or [IRQ15]. The [IRQ10] selection is factory set and recommended for most users.

3.2.6 Power Management Setup

Selecting the POWER MANAGEMENT SETUP menu item calls up the following screen.


Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup
ACPI Function [Enabled]
Power Management [User Define]
Video Off Method [DPMS]
Video Off In Suspend [Yes]
Suspend Type [Stop Grant]
Suspend Mode [Disabled]
HDD Power Down [Disabled]
Wake-up by PCI card [Disabled]
Reload Global Timer Events
Primary IDE 0 [Disabled]
Primary IDE 1 [Disabled]
Secondary IDE 0 [Disabled]
Secondary IDE 1 [Disabled]
FDD,COM,LPT Port [Disabled]
PCI PIRQ[A-D]# [Disabled]
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **ACPI Function**

  Enables/disables the ACPI feature. Selections are [Enabled] or [Disabled]. [Enabled] is factory set and recommended for most users.

- **Power Management**

  You can choose from three power management options. These are [User Define], [Min Saving] or [Max Saving]. The [User Define] selection is factory set and recommended for most users.

- **Video Off Method**

  This setting determines the method to blank the display screen. The available settings are [Blank Screen], [V/H SYNC+Blank], and [DPMS Supported]. The [Blank Screen] selection blanks the display. The [V/H SYNC+Blank] blanks the display and also suspends the Vertical/Horizontal synchronization signal of the display. The [DPMS Supported] selection controls the operation when a CRT that supports DPMS*1 is used. The factory default setting is [DPMS] and is recommended for most users.

- **Video Off In Suspend**

  Designates how the monitor is blanked. The available settings are [Yes] and [No]. The factory default setting is [Yes].

1 This standard is approved by the VESA (Video Electronics Standards Association).

- **Suspend Type**

  Designates the type of suspend method used. The available settings are [Stop Grant] and [PWRON Suspend]. The factory default setting is [Stop Grant].

- **Suspend Mode**

  When enabled, designates the period of time before all devices except the CPU are shut down. The available settings are [1Min], [2Min], [4Min], [8Min], [12Min], [20Min], [30Min], [40Min], [1Hour] and [Disabled]. The factory default setting is [Disabled].

- **HDD Power Down**

  After the hard disk's motor stops, this setting designates the length of time until the PS-B unit enters energy-saving mode. The available selections are[1Min], [2Min], [3Min], [4Min], [5Min], [6Min], [7Min], [8Min], [9Min], [10Min], [11Min], [12Min], [13Min], [14Min], [15Min] or [Disabled]. [Disabled] is factory set and recommended for most users.

- **Wake-Up by PCI Card**

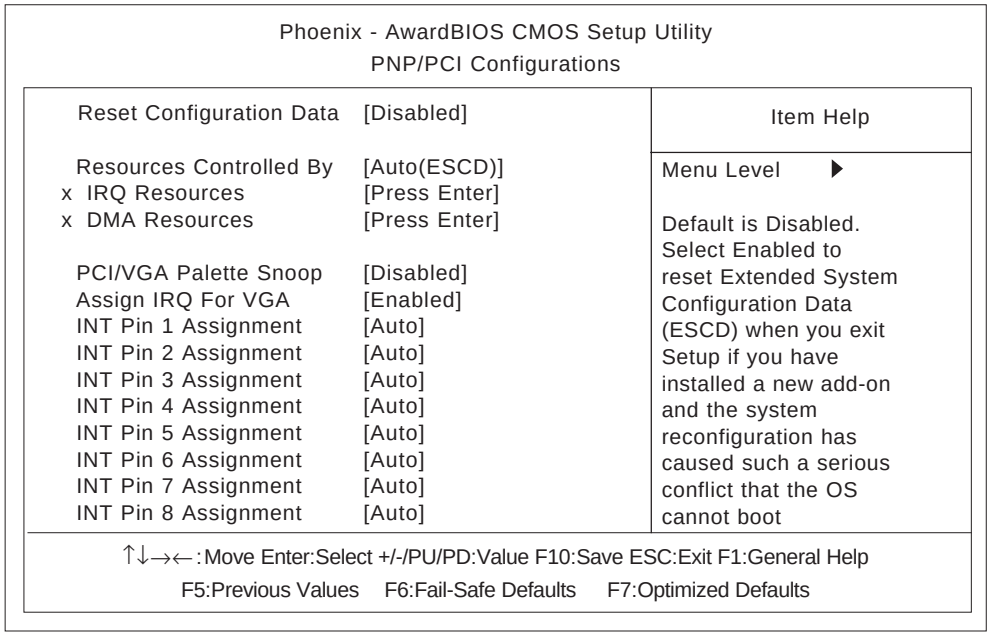
  Enables/disables waking up the PS-B's system via an expansion board signal. The two selections available are [Disabled] and [Enabled]. The [Disabled] selection is factory set and recommended for most users.

- ****Reload Global Timer Events****

  This feature sets the event that reloads the amount (period) of PS-B unit idle time prior to changing to energy-saving mode. Thus, when an event occurs for any of the items in this area that are set to [Enabled], the PS-B unit will recover from energy-saving mode.Enabled/disabled is possble for the following settings: Primary IDE 0, Primary IDE 1, Secondary IDE 0, Secondary IDE 1, FDD, COM, LPT Port, PCI PIRQ[A-D]#. Factory settings are [Disabled] and recommended for most users.

3.2.7 PnP/PCI Configurations

Selecting the PnP/PCI CONFIGURATION menu item Displays the following screen.


Phoenix - AwardBIOS CMOS Setup Utility
PNP/PCI Configurations
Reset Configuration Data [Disabled]
Resources Controlled By [Auto(ESCD)]
x IRQ Resources [Press Enter]
x DMA Resources [Press Enter]
PCI/VGA Palette Snoop [Disabled]
Assign IRQ For VGA [Enabled]
INT Pin 1 Assignment [Auto]
INT Pin 2 Assignment [Auto]
INT Pin 3 Assignment [Auto]
INT Pin 4 Assignment [Auto]
INT Pin 5 Assignment [Auto]
INT Pin 6 Assignment [Auto]
INT Pin 7 Assignment [Auto]
INT Pin 8 Assignment [Auto]
Item Help
Menu Level ▶
Default is Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **Reset Configuration Data**

  Designates whether ESCD (Extended System Configuration Data) data should be erased or not. The two selections available are [Disabled] and [Enabled]. The [Disabled] selection is factory set and recommended for most users.

- **Resources Controlled By**

  The Plug-and-Play feature allows you to designate whether the allocation of I/O Port, IRQ and DMA resources is performed automatically or manually. The two selections available are [Manual] or [Auto(ESCD)]. If [Auto(ESCD)] is selected, the IRQ Resources and DMA Resources selection will be disabled. The [Auto(ESCD)] selection is factory set and recommended for most users.

- **IRQ Resources**

  When resources are controlled using [Manual], manually set each IRQ assignment. Reference **3.2.8 IRQ Resources**

- **DMA Resources**

  When [Resources Controlled By] is set to [Manual], manually set each DMA assignment. Reference **3.2.9 DMA Resources**

- **PCI/VGA Pallet Snoop**

  The two selections available are [Disabled] and [Enabled]. The [Disabled] selection is factory set and recommended for most users. However, if a VGA or MPEG board is used, set this to [Enabled]. For setting details, refer to your VGA or MPEG board's Installation guide.

- **Assign IRQ For VGA**

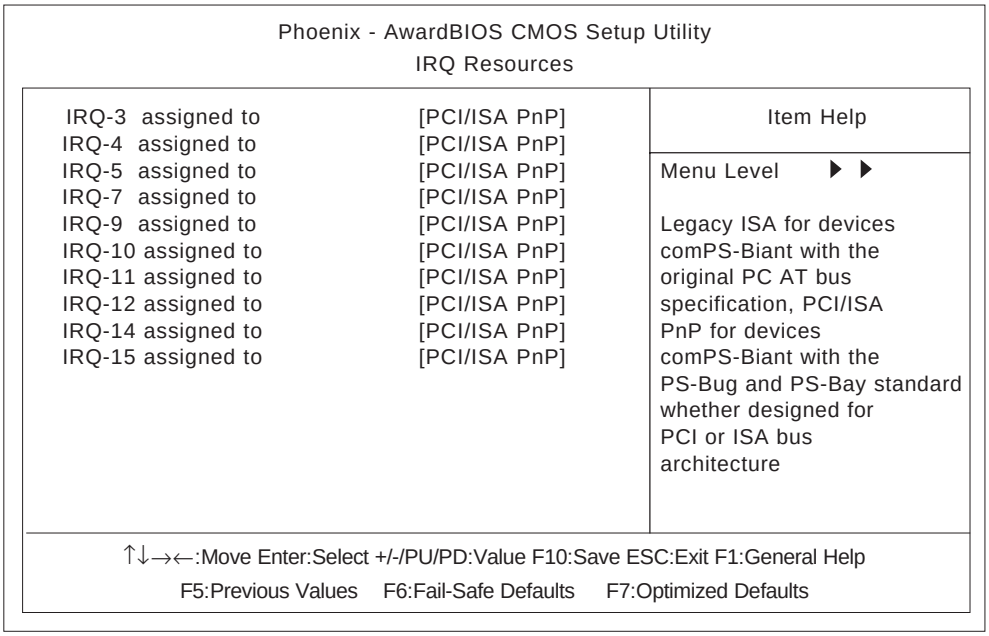
  Designates if the interrupt used by the VGA controller is enabled or disabled. The two selections available are [Disabled] and [Enabled]. The [Enabled] selection is factory set and recommended for most users.

- **INT Pin 1(2/3/4/5/6/7/8) Assignment**

  Used when manually allocating the PCI interrupt signal to an IRQ. Select either [Auto], [3], [4], [5], [7], [9], [10], [11], [12], [14], or [15]. Factory setting is [Auto].

3.2.8 IRQ Resources

Select IRQ Resources from the PnP/ PCI Configurations menu and the following screen will appear.


Phoenix - AwardBIOS CMOS Setup Utility
IRQ Resources
IRQ-3 assigned to [PCI/ISA PnP]
IRQ-4 assigned to [PCI/ISA PnP]
IRQ-5 assigned to [PCI/ISA PnP]
IRQ-7 assigned to [PCI/ISA PnP]
IRQ-9 assigned to [PCI/ISA PnP]
IRQ-10 assigned to [PCI/ISA PnP]
IRQ-11 assigned to [PCI/ISA PnP]
IRQ-12 assigned to [PCI/ISA PnP]
IRQ-14 assigned to [PCI/ISA PnP]
IRQ-15 assigned to [PCI/ISA PnP]
Item Help
Menu Level ▶ ▶
Legacy ISA for devices comPS-Biant with the original PC AT bus specification, PCI/ISA PnP for devices comPS-Biant with the PS-Bug and PS-Bay standard whether designed for PCI or ISA bus architecture
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

■ **IRQ-3 (4/5/7/9/10/11/12/14/15) assigned to**

This setting determines the type of device assigned to the IRQ. This function is available when the [PnP/ PCI Configurations] menu's [Resources Control By] option is set to [Manual].

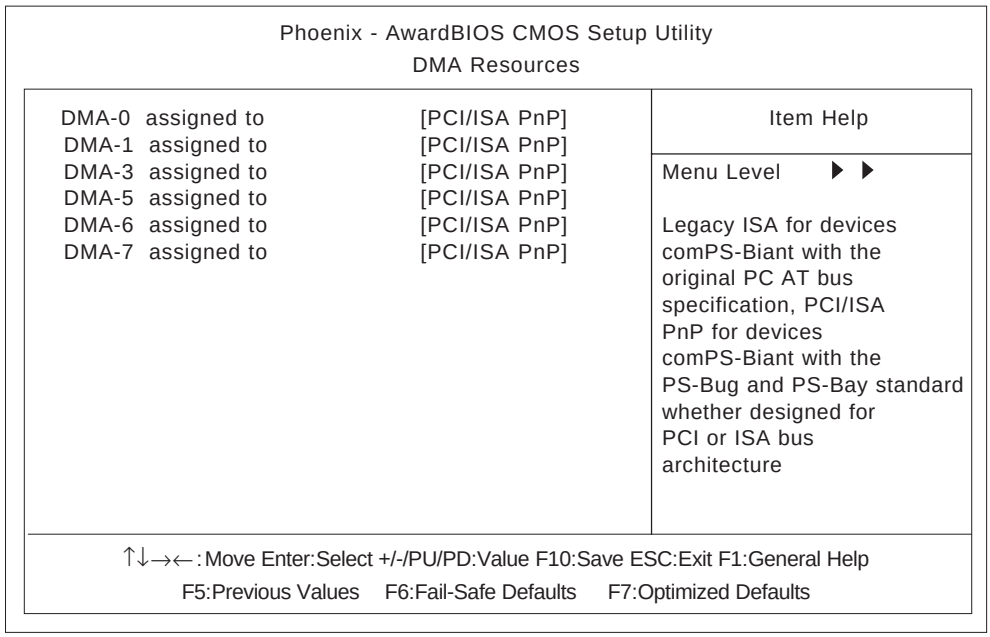
[PCI/ISA PnP] .. Select to use a PnP-ready PCI or ISA card.

[Legacy ISA] .... Select to use a non-PnP ISA card.

The initial settings are all [PCI/ISA PnP].

3.2.9 DMA Resources

Selecting DMA Resources from the PnP/PCI Configuration menu and the following screen will appear.


Phoenix - AwardBIOS CMOS Setup Utility
DMA Resources
DMA-0 assigned to [PCI/ISA PnP]
DMA-1 assigned to [PCI/ISA PnP]
DMA-3 assigned to [PCI/ISA PnP]
DMA-5 assigned to [PCI/ISA PnP]
DMA-6 assigned to [PCI/ISA PnP]
DMA-7 assigned to [PCI/ISA PnP]
Item Help
Menu Level ▶ ▶
Legacy ISA for devices comPS-Biant with the original PC AT bus specification, PCI/ISA PnP for devices comPS-Biant with the PS-Bug and PS-Bay standard whether designed for PCI or ISA bus architecture
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

■ **DMA-0 (1/3/5/6/7) assigned to**

This setting determines the type of device assigned to the IRQ. This function is available when the [PnP/ PCI Configurations] menu's [Resources Control By] option is set to [Manual].

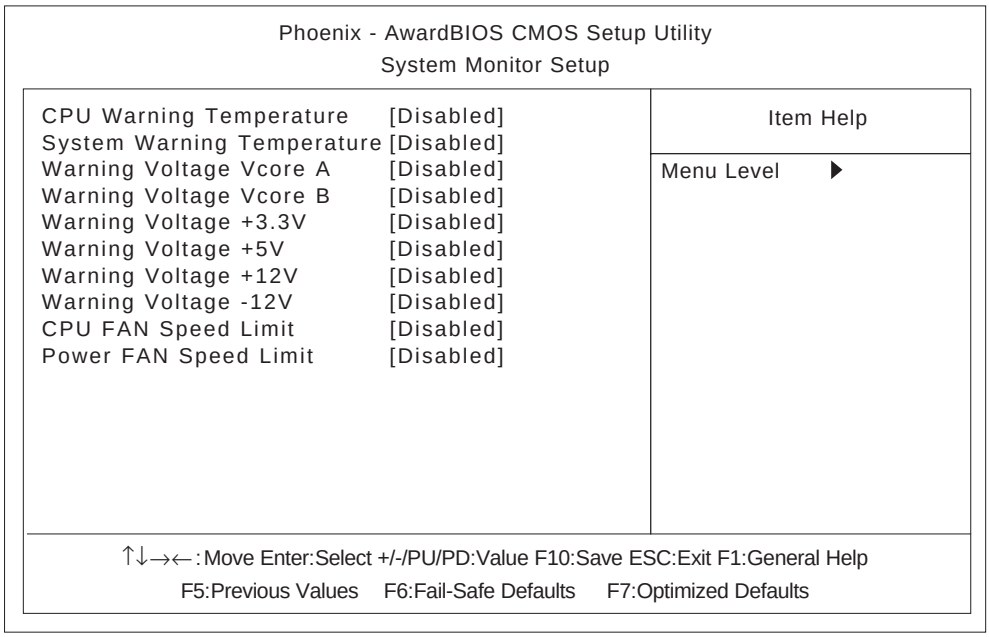
[PCI/ISA PnP] .. Select to use a PnP-ready PCI or ISA card.

[Legacy ISA] .... Select to use a non-PnP ISA card.

The initial settings are all [PCI/ISA PnP].

3.2.10 System Monitor Setup

Select PC Health Status from the System Monitor Setup and the following screen will appear.


Phoenix - AwardBIOS CMOS Setup Utility
System Monitor Setup
CPU Warning Temperature [Disabled]
System Warning Temperature [Disabled]
Warning Voltage Vcore A [Disabled]
Warning Voltage Vcore B [Disabled]
Warning Voltage +3.3V [Disabled]
Warning Voltage +5V [Disabled]
Warning Voltage +12V [Disabled]
Warning Voltage -12V [Disabled]
CPU FAN Speed Limit [Disabled]
Power FAN Speed Limit [Disabled]
Item Help
Menu Level
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

■ **CPU Warning Temperature**

This setting designates the CPU temperature at which a warning will be issued. The available settings are [70°C/158°F], [75°C/167°F], [80°C/176°F], [85°C/185°F], [90°C/194°F] and [Disabled]. The factory default setting is [Disabled].

• When using a PentiumIII 1GHz CPU, select the [75°C/158°F] setting. When using a Celeron 566MHz CPU, select the [90°C/194°F] setting.

■ **System Warning Temperature**

This setting designates the system temperature at which a warning will be issued. The available settings are [70°C/158°F], [75°C/167°F], [80°C/176°F], [85°C/185°F], [90°C/194°F] and [Disabled]. The factory default setting is [Disabled].

■ **Warning Voltage Vcore A**

When enabled, this setting designates that a warning will be issued if the CPU core voltage change exceeds that level. The available settings are [+/-6%], [+/-8%] and [Disabled]. The factory default setting is [Disabled].

■ **Warning Voltage Vcore B**

When enabled, this setting designates that a warning will be issued if the CPU core voltage change exceeds that level. The available settings are [+/-6%], [+/-8%] and [Disabled]. The factory default setting is [Disabled].

- **Warning Voltage +3.3V**

  When enabled, this setting designates that a warning will be issued if the voltage change exceeds +3.3V's designated range. The available settings are [+/-6%], [+/-8%] and [Disabled]. The factory default setting is [Disabled].

- **Warning Voltage +5V**

  When enabled, this setting designates that a warning will be issued if the voltage change exceeds +5V's designated range. The available settings are [+/-6%], [+/-8%] and [Disabled]. The factory default setting is [Disabled].

- **Warning Voltage +12V**

  When enabled, this setting designates that a warning will be issued if the voltage change exceeds +12V's designated range. The available settings are [+/-6%], [+/-8%] and [Disabled]. The factory default setting is [Disabled].

- **Warning Voltage -12V**

  When enabled, this setting designates that a warning will be issued if the voltage change exceeds -12V's designated range. The available settings are [+/-6%], [+/-8%] and [Disabled]. The factory default setting is [Disabled].

- **CPU FAN Speed Limit**

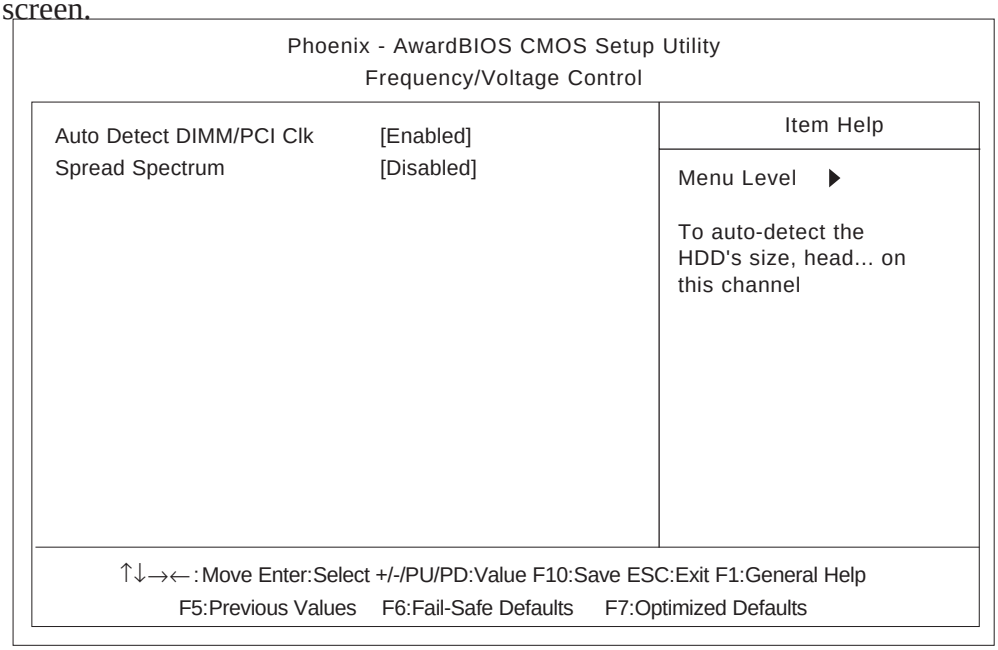
  When enabled, this setting designates the allowed speed range reductions allowed for CPU FAN. The available settings are [-30%], [-50%] and [Disabled]. The factory default setting is [Disabled].

- **Power FAN Speed Limit**

  When enabled, this setting designates the allowed speed range reductions allowed for Power FAN. The available settings are [-30%], [-50%] and [Disabled]. The factory default setting is [Disabled].

3.2.11 Frequency/Voltage Control

Selecting the Frequency/Voltage Control menu item produces the following screen.


Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control
Auto Detect DIMM/PCI Clk [Enabled]
Spread Spectrum [Disabled]
Item Help
Menu Level ▶
To auto-detect the HDD's size, head... on this channel
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **Auto Detect DIMM/PCI CLK**

  This setting designates the auto detect of the DIMM/PCI clock. The available settings are [Enabled] and [Disabled]. The factory default setting is [Enabled] and strongly recommended for users.

- **Spread Spectrum**

  This setting allows you to set the CPU Clock generator's spread Spectrum. The available settings are [Enabled] and [Disabled]. The factory default setting is [Disabled] and strongly recommended for users.

3.2.12 Load Fail-Safe Defaults

When the Menu screen's [Load Fail-Safe Defaults] is selected, you are able to designate if the minimum number of System Settings is loaded in or not. The selections are [Y] and [N].

3.2.13 Load Optimized Defaults

Selecting [Load Optimized Defaults] designates whether or not you will revert to the PS-B unit's factory settings. The selections are [Y] and [N].

When the PS-B unit uses its factory settings, the USB interface cannot be used. For information about connecting the Touch Panel via the USB connector, see 1.2.1 Setting Up the Touch Panel Connection. For information about connecting the USB I/F, see 1.2.2 Using the USB Interface.

3.2.14 Set Supervisor Password

This password is used to change system information settings. It is designed to prevent unapproved users from changing the system information settings. Entering up to 8 characters here will overwrite the current password.

When you wish to have no password, click on the [Enter] key. Next, the words "PASSWORD DISABLE" will appear, providing confirmation that the Password is no longer set.

When password input is required, use the [Advanced BIOS Features] area's [Security Option] feature to enter the password.

Reference **3.2.3 ADVANCED BIOS FEATURES**

3.2.15 Set User Password

This password is used to view system information settings. It is designed to prevent unapproved users from viewing the system information settings. Entering up to 8 characters here will overwrite the current password.

When you wish to have no password, click on the [Enter] key. Next, the words "PASSWORD DISABLE" will appear, providing confirmation that the Password is no longer set.

When password input is required, use the [Advanced BIOS Features] area's [Security Option] feature to enter the password.

Reference *See 3.2.3 ADVANCED BIOS FEATURES*

- **When using either [Set Supervisor Password] or [Set User Password], you can easily view and change system settings.**
- **When using BOTH the [Set Supervisor Password] and [Set User Password] features, [Set User Password] will allow you to only view system data, not change it.**

3.2.16 Save & Exit Setup

This feature saves the settings entered in the Setup Utility and restarts the PS-B unit.

3.2.17 Exit Without Saving

This feature quits the Setup Utility program without saving any settings entered.

1. CD-ROM Contents
2. Setting up Your PS-B Unit
3. Installing Drivers
4. Application Features
5. Windows®2000 and Windows®XP Usage Cautions

Chapter 4 Setting up Your PS-B Unit

An accessory CD-ROM disk is included with the PS-B unit. This CD-ROM contains special programs designed for the PS-B that are not supported by standard versions of Windows®2000 and Windows®XP.

4.1 CD-ROM Contents

4.1.1 Software

This section explains the organization of the software included in the accessory CD-ROM.

PS-2000B User Manual & Driver CD

- [Driver]
  - [Audio] — **Audio Driver** — **<Supported OS types>** Windows®2000, Windows®XP
  - [Chipset] — **Chipset Driver** — **<Supported OS types>** Windows®2000
    - [Win2000]
  - [Display] — **Display Driver** — **<Supported OS types>** Windows®2000, Windows®XP
- [Manual] — **<User Manual>**
  - [Eng] — PDF Manual (English Version)
  - [Jpn] — PDF Manual (Japanese Version)
- [Reader] — **<PDF Reader>**
  - [Eng] — Acrobat®Reader (English Version)
  - [Jpn] — Acrobat®Reader (Japanese Version)
- [Utility] — **<PS-B Utility Tools>**
  - [Shutdown] — Remote Shutdown
  - [RASSvr] — Remote RAS Server for PC
  - [Win2000] — **Utility Setup** — **<Supported OS types>** Windows®2000
  - [WinXP] — Windows®XP

4.2 Setting up Your PS-B Unit

There are two types of PS-B units. One has a hard disk with no pre-installed OS and one has a hard disk with a pre-installed OS. Therefore, the setup procedures used will differ. This manual describes only the procedures for setting up a PS-B unit using a hard disk with no pre-installed OS.

For an explanation of how to set up a PS-B using a hard disk with a pre-installed OS, refer to the "Pre-installed Type Installation Guide", provided with the HDD unit.

4.2.1 Setup Procedures

First, you will need to install either Windows®2000 or Windows®XP. You also need to install any required utility software.

■ Installing the HDD Unit

Check to see if a hard disk unit is installed in your PS-B unit. If it is not, please install one prior to going to the next step.

Reference *PSB-HD020 Installation guide*

■ Setting Up HDD Unit System Information

After you install your HDD unit, you will need set up a variety of system information. Set up this information so that the system recognizes the newly-installed hard disk drive.

Reference *PSB-HD020 Installation guide*

■ Setting Up the OS

Install your operating system. For detailed setup procedures, refer to that product's installation manual.

The PS-B unit supports Windows®2000 and Windows®XP. PS-B unit performance cannot be guaranteed when any other operating system is used.

■ PS-B Utility Setup

Install the necessary drivers and utility software from the "PS-2000B Series User Manual & Driver CD".

- A PS/2 (mini-DIN) type keyboard is required to install the OS.
- When using a touch panel display with the PS-B, the touch panel will require an optional mouse emulation software (UPDD). When installing the mouse emulation software, be sure to specify the number of the serial cable's COM port. Visit our website (http://www.pro-face.com/otasuke/) and download the mouse emulation software (UPDD).

◆ Installing Software from the PS-2000B Series User Manual & Driver CD-ROM

To install this software you need to connect Digital Electronics Corporation's optional CD-ROM/FDD (PSB-CD/FD01) unit to the PS-B.

To begin the installation, click on the "Setup.exe" file in your OS' folder.

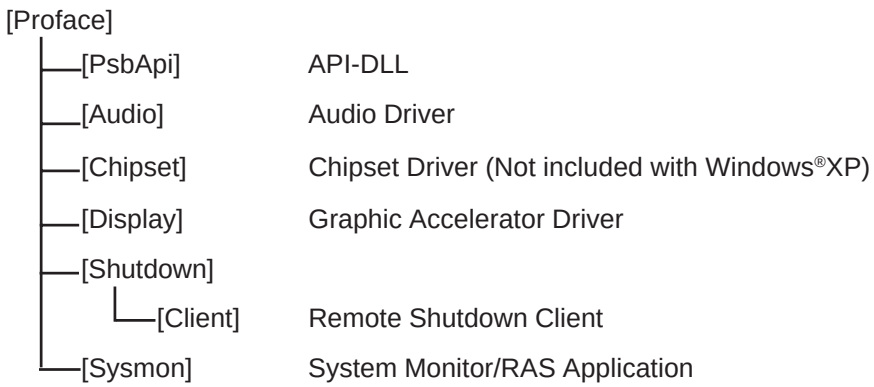
Example) With Windows®XP

D:\Utility\WinXP*\Disk1\Setup.exe (When the CD-ROM drive is "D")

└── For Windows®2000, this will be "Win2000".

◆ PS-B Hard Disk Data

Setting up the PS-B unit's utilities will create a [Proface] folder on the C drive. The following diagram describes the configuration of this folder.



- The actual organization may differ depending on your PS-B unit's OS.
- Setting up the PS-B unit's utilities automatically copies the hardware control driver (PSSYSMON.SYS) to the system folder.

4.2.2 Setting Up an HDD with Pre-installed OS

Use the following steps to set up your PS-B unit's HDD unit, which contains the Windows®2000 or Windows®XP operating system, related drivers and utility software.

- Each pre-installed operating system is designed specially for the PS-B unit.
- "Service Pack 4" is included in the Windows®2000 HDD unit.
- "Service Pack 2" is included in the Windows®XP HDD unit.

■ Installing the HDD Unit

After opening the PS-B unit's packing box, check that a hard disk unit is installed. If it is not, you will need to install it.

Pre-installed HDD Unit Installation Guide

■ Setting Up the PS-B Unit's System Information

If your PS-B unit does not have a pre-installed HDD, you will need to install an HDD unit and then configure that drive's system information. Be sure to check that the system successfully recognizes the drive.

Reference *Pre-installed HDD Unit Installation Guide*

■ Setting Up an HDD with Pre-installed OS

Follow the setup procedures given in the Pre-installed Type HDD Unit Installation Guide.

◆ PS-B Hard Disk Data

Setting up the PS-B unit's utilities will create a [Proface] folder on the C drive. The following diagram describes the configuration of this folder.

[Proface]

[PsbApi]	API-DLL
[Audio]	Audio Driver
[Chipset]	Chipset Driver (Not included with Windows®XP)
[Display]	Graphic Accelerator Driver
[Setup]	CD Image
[Shutdown]	
[Client]	Remote Shutdown Client
[Sysmon]	System Monitor/RAS Application

Note:

- The actual organization may differ depending on your PS-B unit's OS.
- Setting up the PS-B unit's utilities automatically copies the hardware control driver (PSSYSMON.SYS) to the system folder.

4.3 Installing Drivers

Three types of dedicated PS-B drivers (Audio, Chipset, and graphic accelerator) are available.

Install the required drivers from this data when using a PS-B with no pre-installed OS or when the system recovery has been performed via the recovery menu.

This explanation given in this section assume that the [Proface] folder has been created.

Once drivers are installed in the PS-B unit, they cannot be uninstalled.

■ Installing the Audio Driver

Installing the Audio driver enables the OS' Audio feature.

(1) Double-click on the "Setup.exe" file located in the following folder. Follow the instructions given to install the driver.

C:\Proface\Audio\Setup.exe

■ Installing the Chipset Driver

Installing the Chipset driver adds the Chipset feature to the OS.

(1) Double-click on the "infinst_autol.exe" file located in the following folder. Follow the instructions given to install the driver.

C:\Proface\Chipset\infinst_autol.exe

■ Installing the Graphic Accelerator Driver

Installing the Graphic Accelerator Driver will accelerate the screen refresh speed, using special hardware features.

(1) Start "C:\Proface\Display\Win2K_xpm67.exe" file.

(2) Select [Next]-[Yes]-[Exit], and then restart the system to complete the installation.

4.4 Special Application Program Features

The special programs designed for the PS-B unit are located in the following folders.

File Name	Windows®XP	Windows®2000
PSB_RAS.DLL	C:\Windows\System32	C:\Winnt\System32
PSB_DLL.DLL		
PSB_IOCS.DLL		
PSB_Smon.exe	C:\Proface\Sysmon	
PSB_Wps.exe	C:\Proface\Sysmon	
Pssysmon.sys	C:\Windows\System32\Drivers	C:\Winnt\System32\Drivers

■ API-DLL

These dynamic link libraries allow users to access RAS features via custom-made applications. The following three types are available.

◆ System Monitoring: PSB_DLL.DLL

This dynamic link library allows users to access the PS-B unit's system monitor feature.

◆ RAS Features: PSB_IOC.DLL

This dynamic link library allows users to access RAS features via custom-made PS-B applications.

Reference *For details, refer to the **API Reference Manual**.*

◆ Shared Memory Access: PSB_RAS.DLL

This dynamic link library allows users to access shared memory via remote RAS features.

Reference *For details, refer to the **API Reference Manual**.*

■ System Monitoring/RAS Applications: PSB_Smon.exe/ PSB_Wps.exe

The RAS and System Monitoring features allow users to monitor temperature voltage, and fan operation alarms. This program runs on Windows®.

◆ System Monitoring Program: PSB_Smon.exe

Reference ***5.2.3 System Monitoring Operation (PSB_Smon.exe)***

◆ Watchdog Parameter Setup Program: PSB_Wps.exe

Reference ***5.2.2 System Monitoring Property Settings (PSB_Wps.exe)***

■ System File: Pssysmon.sys

This system file allows use of the RAS and System Monitoring features. This file should not be modified. If it is modified, the RAS and System Monitoring features may not operate correctly.

4.4.1 Uninstalling Utility Software

Utility programs can be uninstalled using the following procedure.

(1) Click on the [Control Panel] icon.

(2) Click on the [Add/Remove Programs] icon and from the list of installed programs that appears, select [PS-B Driver and Utility] and click [Add/Remove].

Once drivers are installed in the PS-B unit, they cannot be uninstalled.

4.5 When Using Windows®2000/Windows®XP

4.5.1 Automatic System Log-on Setup

This setting allows users to simplify password entry at startup.

■ Windows®2000

(1) Double-click on the [Control Panel]'s [User and Password] icon.

(2) Designate the automatic logon user, and deselect the [User must enter the user name and password to use this computer] checkbox.

(3) Click on the [Advanced] tab, and deselect the [Require users to press Ctrl + Alt + Del keys before logging on] checkbox.

(4) Click the [Apply] button. Next, when the automatic logon dialog box appears, enter the password.

■ Windows®XP

(1) Select [Run] from the [Start] menu.

(2) Enter "Control userpasswords2", and click [OK].

(3) Deselect the [User must enter the user name and password to use this computer] checkbox and click [Apply].

(4) Enter the user name and password for automatic logon and click [OK].

A password must be assigned for user to perform automatic logon.

If automatic logon is not used, a PS/2 (mini-DIN) type keyboard is required to logon.

4.5.2 Uninterrupted Power Supply System (UPS)

Be sure to shut down your OS before turning off your machine. Also, use of an uninterrupted power supply is recommended to protect your data from accidental power failures.

An uninterrupted power supply will give you sufficient time to shut down your system safely in case of a power failure, and can even be set up to automatically shut down your Windows® OS.

The PS-B unit, however, cannot be used with a 2-Step Inverter Output type uninterrupted power supply. Be sure the unit is a sine-output type power supply.

For details, consult your local UPS system dealer.

4.5.3 Changing System Settings

Your Windows® system's configuration settings will need to be changed when the PS-B unit is connected to a LAN network or printer.

◆ **Changing the System Configuration Settings**

When the Windows® system configuration settings are changed, the following message appears.

Enter the name of the folder where you will save the configuration changes and click [OK].

- Insert the CD labeled "Windows® xx[*1] Professional CD-ROM" in the CD-ROM drive (D:), and click [OK].
- When copying the file from other locations such as a floppy disk or network server, also click the [OK] button.

- **When Your PS-B has No Preinstalled OS**

  Double-click the [I386] folder in the Windows® CD-ROM.

  D:\I386 (When the CD-ROM drive is "D")
- **When Your PS-B has a Preinstalled OS**

  C:\Proface\Setup\I386

1. *"xx" is your OS.*

Example) When using Windows®XP: "Windows®XP Professional CD-ROM"

4.5.4 NTFS File System Conversion

If your PS-B unit has a pre-installed OS, or if your OS is formatted with the Windows® DOS-compatible file system (FAT32), it can be converted to the NTFS file system.

To convert to the NTFS file system, start up Windows® and use the following command.

convert X: /fs:ntfs (Replace "X" with your drive name.)

Once the file system is converted to the NTFS file system, it cannot be converted back to the Windows® DOS-compatible file system (FAT32).

1. RAS Features
2. System Monitor/RAS Features
3. Remote RAS
4. Remote Shutdown

Chapter 5 Monitoring Features

5.1 RAS Features

5.1.1 PS-B RAS Features

RAS (Reliability, Availability, Serviceability) features include a variety of useful system performance monitoring features, with the main feature being device monitoring. These features are designed to improve overall system reliability.

■ Types of Monitoring

The PS-B unit supports the following Alarm Monitoring and External Input Signal features.

Error Monitoring	Power Voltage Alarm
	Cooling Fan RPM Alarm
	Internal Temperature Alarm
	Watchdog Timer Timeup
	SMART Alarm
External Input Signal	General Signal Input (DIN 4-bit, DIN0 to DIN3)
	Remote Reset Input[*1]

The signal level of the general signal input (DIN) should be 1.5 seconds or longer; otherwise, it may not be detected.

■ Alarm Processing

The PS-B provides the following alarm processing (processing or external output signals) in response to the previous page's alarms, or to external signal input.

External Output Signal	General Signal Output (DOUT 4-bit, DOUT0 to DOUT3)
Types of Processing	LED Indicator (2 colors, 1 lamp)
	Pop-up Message Output
	Buzzer Output
	System Shutdown
	System Reset

1. The Remote Input feature can be disabled or enabled, however, a forced hardware reset cannot be set using the LED settings.

■ System Monitor

The System Monitor feature (software utilities) allows users to enable or disable the monitoring of any of the above monitoring items and external signal input, as well as to individually set alarm processing settings.

Reference *5.2 System Monitor/RAS Features*

In addition, System Monitor includes a dynamic link library (API-DLL) feature that gives other applications access to RAS features.

5.1.2 RAS Feature Details

■ Error Monitoring

◆ Power Voltage Alarm

Monitors the status of the PS-B unit's built-in power supply and internal CPU power supply.

◆ Cooling Fan Rotation Alarm

Monitors the power-supply and CPU cooling fan RPM speeds.

◆ Internal Temperature Alarm

Monitors the internal temperature of the PS-B unit and the ambient temperature of the CPU.

After configuring the settings via [System Setup], use the System Monitor feature to enable/disable individual monitoring features, and the monitoring levels for voltage, fan and temperature.

◆ Watchdog Timer Timeup

This feature monitors the performance of the CPU by writing the CPU's time-up count value from the application to the RAS feature's built-in programmable timer. Errors are detected when the writing of the count value from the application stops, which will cause a timer overflow.

Use the System Monitor Property area to set the Watchdog Timer Timeup ON or OFF, and enter detailed error processing settings.

◆ SMART Alarm

Monitors the status of the hard disk. Detects a warning of trouble of the hard disk.

- **Administrator Authentication is required for executing SMART Monitoring.**
- **A CF card doesn't support SMART and therefore the status of the CF card cannot be monitored.**
- **When a hard disk except options made by Pro-face is used, operation of SMART Monitoring cannot be guaranteed.**

- **The SMART Monitor can be performed for the hard disk connected to the IDE only. The state of the hard disk connected via a USB or a SCSI cannot be monitored.**
- **When using a Software Mirroring Utility PL-SM900 with Rev. C or before, the SMART Monitoring can not perform.**

■ External Input Signals

The RAS interface connector processes the following input signals.

Reference *For connector pin arrangements and electrical specifications, refer to **1.4.2 RAS Interface**.*

◆ General Signal Input (DIN)

General Signal Input is a general type of digital input and is used for detecting external device alarms. 4 bits (DIN0 to DIN3) are assigned for this input.

Use the System Monitor Property to turn the monitoring feature ON/OFF and enter detailed error processing settings.

The signal level of the general signal input (DIN) should be 1.5 seconds or longer; otherwise, it may not be detected.

◆ Remote Reset Input (RST)

This is the PS-B hardware reset signal sent from an external device. When this signal is enabled, a forced hardware reset is triggered.

Use the System Monitor Property to turn the Remote Reset Input feature ON/OFF, and enter detailed error processing settings.

.

■ External Output Signals

The RAS interface connector provides the following output signals.

Reference *For connector pin arrangements and electrical specifications, refer to **1.4.2 RAS Interface**.*

◆ General Signal Output (DOUT)

General Signal Output is a digital output signal for sending system status information to external devices. 4 bits (DOUT0 to DOUT3) are assigned for this output.

This feature can be controlled from an application via the System Monitor API-DLL.

■ Types of Processing

The PS-B unit can send the following system status information to an external device.

◆ LED Indicator

The two-color LED is used to indicate PS-B system conditions. It is also used as a power ON/OFF indicator. The LED is located on the front face of the PS-B unit.

LED Color	System Status	Output Conditions
Green (Lit)	Normal operation (Power ON)	None
Orange (Lit)	A RAS alarm has occurred	LED is enabled via System Monitor Property

◆ Pop-up Message Output

This feature displays system status via a Windows® pop-up message.

System Monitor Property is used to enable or disable this feature.

◆ Buzzer Output

This feature uses the PS-B unit's built-in speaker to alert the operator about PS-B system status.

System Monitor Property is used to enable or disable this feature.

◆ System Shutdown

This feature shuts down the PS-B unit's OS.

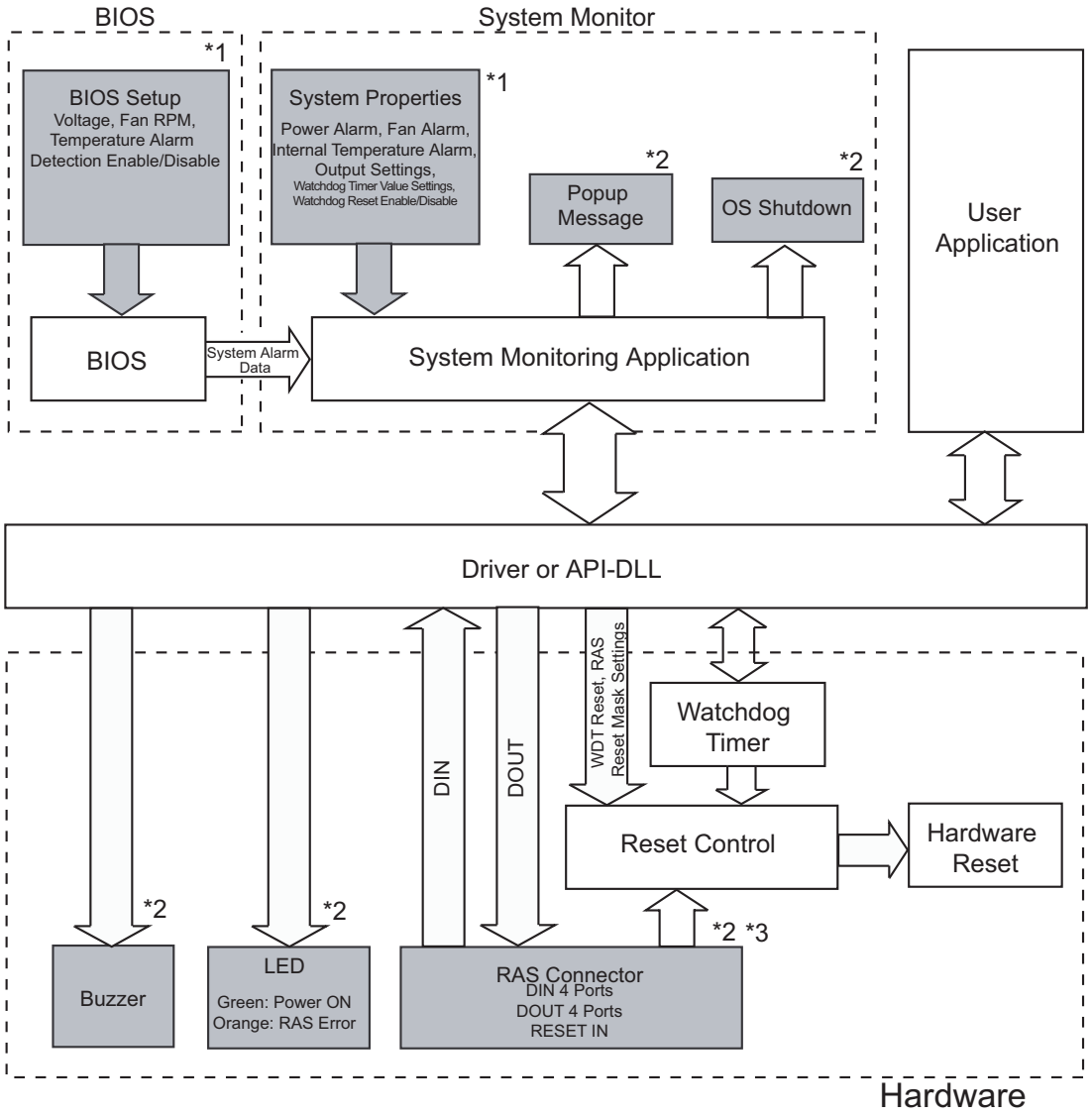
System Monitor Property is used to enable or disable this feature.

◆ System Reset

This feature resets the system when the Watchdog Timer reaches "time up".

System Monitor Property is used to enable or disable this feature.

5.1.3 RAS Feature Overview



**1 Be sure to adjust these settings according to your system's specifications.*

Reference ***5.2 System Monitor/RAS Feature***

**2 Output via the RAS feature.*

**3 Be sure you RAS connector's wiring is designed for your system's specifications.*

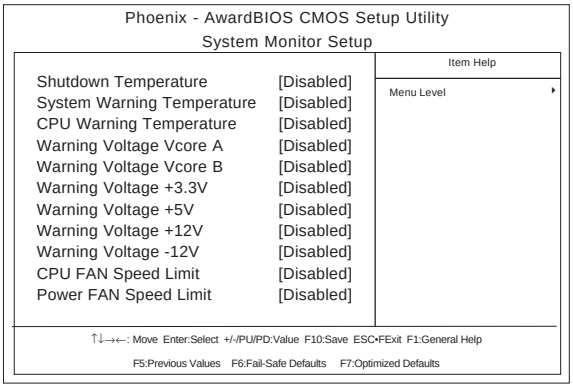
Reference ***1.4.2 RAS Interface***

5.2 System Monitor/RAS Features

5.2.1 Setup Procedures

Follow the steps below to enable the System Monitor/RAS features.

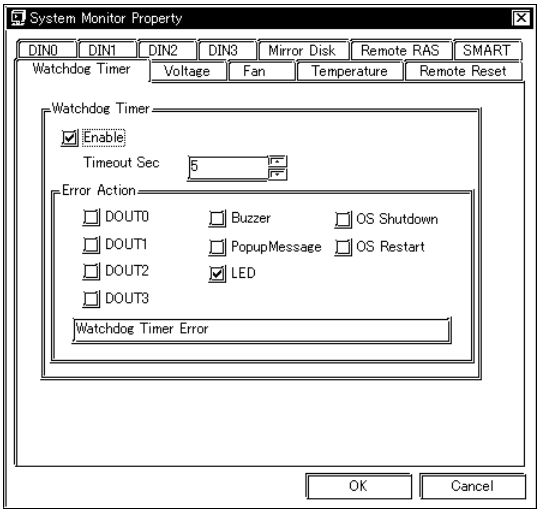
■ Via System Monitor Setup Screen


Phoenix - AwardBIOS CMOS Setup Utility
System Monitor Setup
Item Help
Menu Level
Shutdown Temperature [Disabled]
System Warning Temperature [Disabled]
CPU Warning Temperature [Disabled]
Warning Voltage Vcore A [Disabled]
Warning Voltage Vcore B [Disabled]
Warning Voltage +3.3V [Disabled]
Warning Voltage +5V [Disabled]
Warning Voltage +12V [Disabled]
Warning Voltage -12V [Disabled]
CPU FAN Speed Limit [Disabled]
Power FAN Speed Limit [Disabled]
↑↓→←: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

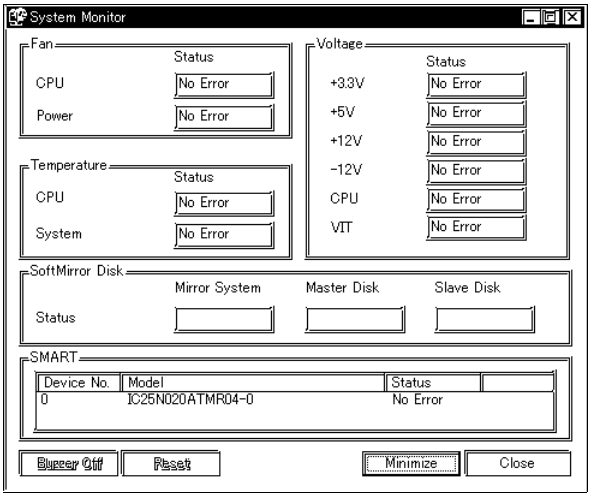
Use the [System Monitor Setup] menu's System Setup screen to enable or disable monitoring features.

Reference 3.2.10 System Monitor Setup

■ Via Applications



Start the PS-B unit's OS and start up the System Monitor Property using the [Start] ->[Programs]-> [System Monitor]->[System Monitor Property] commands. Next, set the processing to be performed when a System Monitor/RAS event occurs.



System status can be monitored at any time via the System Monitor. Select [Start] -> [Program] -> [System Monitor].

Note:

- Administrator Authentication is required for executing SMART Monitoring. When a user who does not have the administrator authentication logs in, nothing is displayed in the item of SMART.

5.2.2 System Monitoring Property Settings (PSB_Wps.exe)

The System Monitor Property screen allows you to configure the operating settings that are activated when system conditions exceed the allowable range (when an error occurs) of each monitoring device specified on the [System Monitor Setup] menu on the System Setup screen.

The following table lists the operating settings that can be configured for each feature.

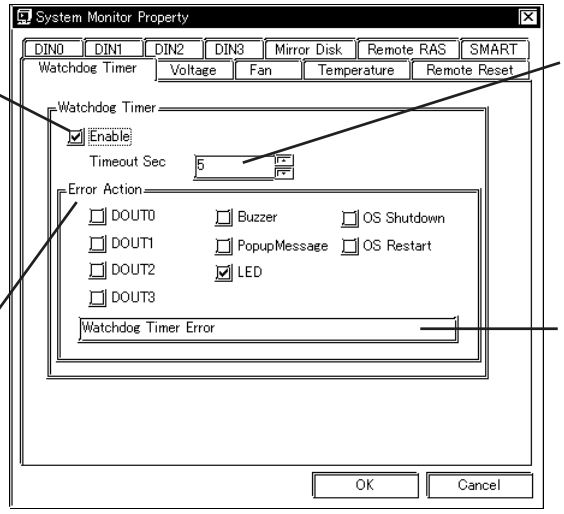
❍: Setting available x: Setting not available

Operation / Feature	DOUT	Buzzer	Popup Message	OS Shutdown	OS Restart	LED
Watchdog Timer	❍	❍	❍	❍	❍	❍
DIN	❍	❍	❍	❍	x	❍
Voltage	❍	❍	❍	❍	x	❍
Fan	❍	❍	❍	❍	x	❍
Temperature	❍	❍	❍	❍	x	❍
Remote Reset[*1]	x	x	x	x	x	x
Mirror Disk	❍	❍	❍	x	x	x
SMART	❍	❍	❍	x	x	❍

The following table lists the description of each operation.

Item	Description of the Operation
DOUT	Outputs signals from DOUT of the RAS interface.
Buzzer	Sounds a beep as an alarm. (Cannot be set up when a checkmark is put to the "OS Shutdown" checkbox.
Pop-up Message	Displays error messages as pop-up messages. (The messages pop up on the screen.)
OS Shutdown	Shuts down the operating system.
OS Restart	Restarts the operating system.
Enable	Select or deselect this option to enable or disable each setting of the monitoring feature.
LED	The front orange LED lights

The following is the overview of the System Monitor Property setting screen.



Enable of disable the feature.

Set up the timer.

Specify the operation to be performed when the condition exceeds the allow-able range.

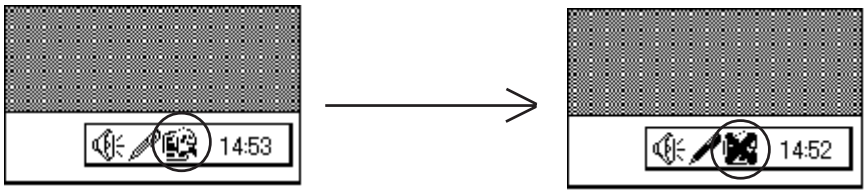
Enter the message to be displayed as a pop-up message.

1. The Remote Reset feature setting is selectable only between Enable and Disable.

5.2.3 System Monitoring Operation (PSB_Smon.exe)

The System Monitor screen will not be displayed immediately after the System Monitor is started, instead, the icon will be stored in the System Tray.

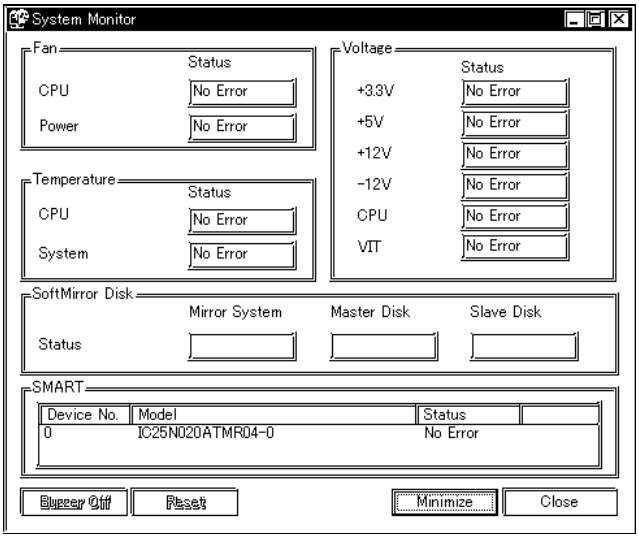
When and error is detected, the "Operations (buzzer, pop-up message output, etc.)" set on the System Monitor Property are performed, and then an "X" mark appears on the icon on the System Tray, which indicates an error status. When the icon on the System Tray changes as illustrated below, double-click on the icon to review the description of the error condition.



Icon display upon start-ups

Icon display when an error is detected.

The following is the System Monitor screen.



System Monitor Screen

As for Device No. of SMART, [0] means Master and [1] means Slave.

The [Buzzer Off], [Reset], [Minimize], [Close] buttons are located at the bottom of the System Monitor screen. The following table lists the features of the buttons.

Button	Operation
Buzzer Off	Stops the buzzer sounds at normal operations.
Reset	Clears the error condition held at normal operations and inside the System Monitor.
Minimize	Minimize the System Monitor into the icon display.
Close	Closes the System Monitor.

The System Monitor screen displays whether the each parameter of "FAN/TEMP/VOLTAGE/SMART" is disabled or in normal/abnormal condition. The following table lists the status to be displayed.

Display	Meaning
No Error	Normal
Error	Abnormal
Disable	Monitoring disabled
Not Support	Not Support

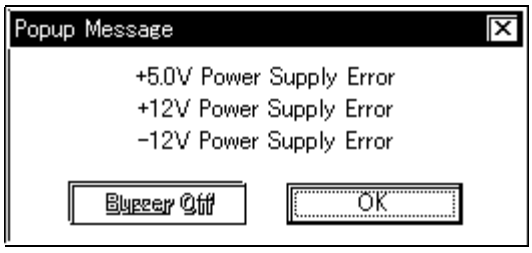
Note: [Not Support] is displayed when a device like a CF card, which does not support SMART, is detected.

The system performs the Error Action set in the System Monitor Property when an error condition is detected with each monitoring item, or an input from external input (Universal Input) is detected.

Reference *5.2.2 System Monitoring Property Settings*

The Error Action is performed only one time when an error or input is detected for each monitoring item.

For example, look at the "+3.3 V" and "+5.0 V" options in the Voltage field. When the pop-up message feature for monitoring the voltage status is enabled, the pop-up message "+3.3 V Power Supply Error" appears on the screen when the +3.3 V power supply error occurs. Press the [OK] button on the dialog box to hide the message. The "+3.3 V Power Supply Error" will not appear even when a +3.3 V power supply error occurs again. However, when a +5.0 V power supply error occurs, the pop-up message "+5.0 Power Supply Error" appears on the screen. The pop-up message displays the monitored item and error description. When the buzzer feature is enabled, press the [Buzzer Off] button on the pop-up message to stop the buzzer sound. Press the [OK] button to close the pop-up message.



Output Screen of Pop-up Message

When "OS Shutdown" is enabled, the system automatically enters the shutdown operation without prompting the confirmation message for the user.

To display the System Monitor screen for reviewing the current condition, double-click on the icon on the System Tray.

When the buzzer sounds as an Error Action, the System Monitor screen displays the [Buzzer Off] button that is hidden under normal conditions. When a pop-up message window is displayed, the [Buzzer Off] button appears on the window.

Once an error is detected, the System Monitor holds the "error" status. (Displays the icon indicating the error status.) To recover from the error status, press the [Reset] button on the System Monitor screen, of turn off the PS-B, perform maintenance service for removing the cause of the error, and then turn on the power again.

5.2.4 Error Messages

This section describes the error message and closing messages displayed on the System Monitor and System Monitor Property screens.

■ System Monitor

◆ Error Pop-up Message

When an error occurs while the "Popup Message" option is enabled for Error Action, the following messages appears on the pop-up screen output screen under the factory-configured settings.

Error-generating Item	Message
CPU Voltage	"CPU Power Supply Error"
CPU Voltage 2	"VIT Power Supply Error"
+3.3 V Voltage	"+3.3V Power Supply Error"
+5.0 V Voltage	"+5.0V Power Supply Error"
+12 V Voltage	"+12V Power Supply Error"
-12 V Voltage	"-12V Power Supply Error"
Power FAN	"Power FAN Error"
CPU FAN	"CPU FAN Error"
System Temperature	"System Temperature Error"
CPU Temperature	"CPU Temperature Error"
DIN0	"Input DIN0"
DIN1	"Input DIN1"
DIN2	"Input DIN2"
DIN3	"Input DIN3"
Watchdog Timer	"Watchdog Timer Error"
Mirror Disk	"A Mirror disk error is occurred"
SMART	"SMART Error"

The messages displayed on the pop-up message output screen can be modified on the System Monitor Property screen.

◆ Driver Operation Error

"The System Monitor driver not found."

"Install the latest driver."

◆ Driver Version Error

"The old System Monitor driver version."

"Update the driver."

◆ **Overlapped Startup Message**

"System Monitor has started."

"Terminate the System Monitor in starting."

◆ **Closing Confirmation Message**

"The System Monitor is terminated."

"Are you sure?"

■ System Monitor Property

◆ **Overlapped Startup Message**

"System Monitor property has started."

"Terminate the System Monitor Property."

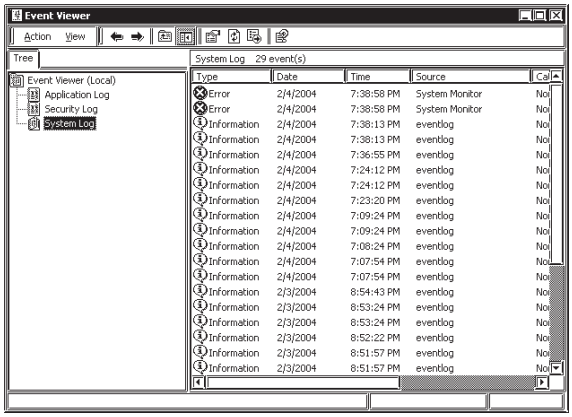
◆ **Closing Confirmation Message**

"Save Changes to the registry?"

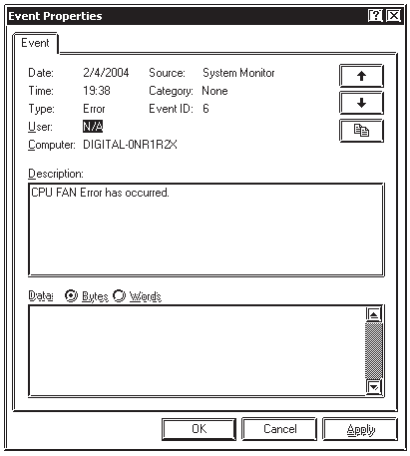
5.2.5 Error Displays When Using Event Viewer

Error type/location and error actions are recorded as error events in the System Log. Error event information can be checked using the Event Viewer.

■ Error Message Display


Event Viewer
Action View
Tree
System Log 29 event(s)
Event Viewer (Local)
Application Log
Security Log
System Log
Type Date Time Source
Error 2/4/2004 7:38:58 PM System Monitor
Error 2/4/2004 7:38:58 PM System Monitor
Information 2/4/2004 7:38:13 PM eventlog
Information 2/4/2004 7:38:13 PM eventlog
Information 2/4/2004 7:36:55 PM eventlog
Information 2/4/2004 7:24:12 PM eventlog
Information 2/4/2004 7:24:12 PM eventlog
Information 2/4/2004 7:23:20 PM eventlog
Information 2/4/2004 7:09:24 PM eventlog
Information 2/4/2004 7:09:24 PM eventlog
Information 2/4/2004 7:08:24 PM eventlog
Information 2/4/2004 7:07:54 PM eventlog
Information 2/4/2004 7:07:54 PM eventlog
Information 2/3/2004 8:54:43 PM eventlog
Information 2/3/2004 8:53:24 PM eventlog
Information 2/3/2004 8:53:24 PM eventlog
Information 2/3/2004 8:52:22 PM eventlog
Information 2/3/2004 8:51:57 PM eventlog
Information 2/3/2004 8:51:57 PM eventlog

1) Start the [Control Panel] -> [Administrative Tools] -> [Event Viewer], and select [System Log].



2) Select the System Monitor's error and click the [Properties] icon. When the [Event Properties] dialog box appears, the error message will appear in the [Description] area.

◆ Error Type/Location

The error types/locations shown by the Event Viewer are as follows.

Error Type/Location	Error Message
+3.3V	+3.3V Error has occurred.
+5.0V	+5.0V Error has occurred.
+12V	+12V Error has occurred.
-12V	-12V Error has occurred.
CPU voltage	CPU voltage Error has occurred.
Vit voltage	Vit valtage Error has occurred.
CPU FAN	CPU FAN Error has occurred.
Power FAN	Power FAN Error has occurred.
CPU Temp	CPU Temperature Error has occurred.
System Temp	System Temperature Error has occurred.
DIN0	DIN0 input has occurred.
DIN1	DIN1 input has occurred.
DIN2	DIN2 input has occurred.
DIN3	DIN3 input has occurred.
Watch Dog Timer	Watch Dog Timer Error has occurred.
Backlight	Backlight Error has occurred.
Soft Mirror	Mirror Disk Error has occurred.
SMART	SMART Error has occurred. Attribute (No.) (Attribute Name) Device (No.) (HD Model). The descriptions in the parentheses vary depending on details of occurring errors and the device having errors occur (0:Master,1:Slave).

◆ Error Action

Using the Event Viewer the following actions can be taken when an error occurs.

- The data shown in the table's "□" indicate the error type/location.
- The actions to take after an error occurs are set via the System Monitor Property screen.

Error Action	Error Message
Buzzer	Buzzer has sounded because of □□ error.
Popup Message	Popup message has been shown because of □□ error.
OS Shutdown	Windows has been shut down because of □□ error.
LED	LED has changed to orange because of □□ error.
DOUT0	DOUT0 has output because of □□ error.
DOUT1	DOUT1 has output because of □□ error.
DOUT2	DOUT2 has output because of □□ error.
DOUT3	DOUT3 has output because of □□ error.

When a "+3.3V" error occurs and the buzzer sounds, two errors will be displayed, "+3.3V Error has occurred." and "Buzzer has sounded because of +3.3V error".

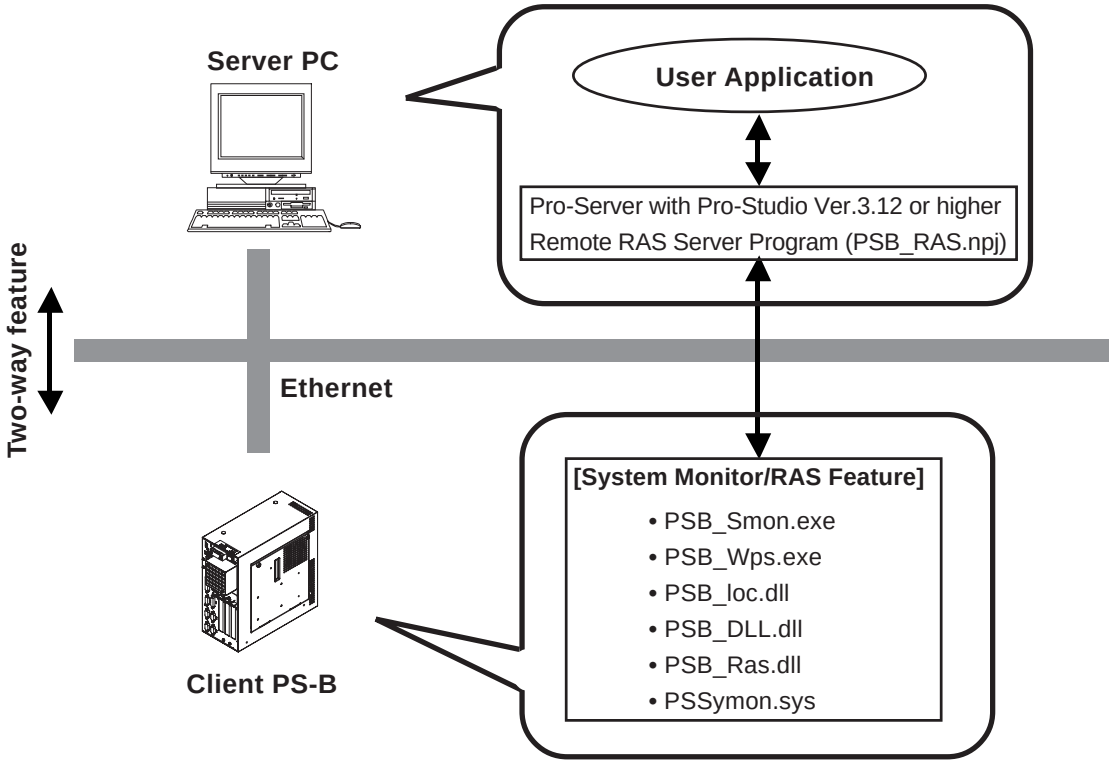
5.3 Remote RAS

The Remote RAS feature uses the Pro-face's Pro-Server with Pro-Studio (optional) installed in the host PC to monitor and control the System Monitor/RAS feature of the PS-B.

Pro-Server with Pro-Studio Ver.3.12 of higher is required to use the Remote RAS feature. When using this feature, refer to the installation guides provided with the Pro-Server as well as this manual.

5.3.1 System Configuration

The system employing this feature is configured as illustrated below.



5.3.2 Installation Procedures

On the server PC, start up the "Setup.exe" file in the [RASSvr] folder on the accessory CD-ROM, and then install the program by following the instructions on the screen.

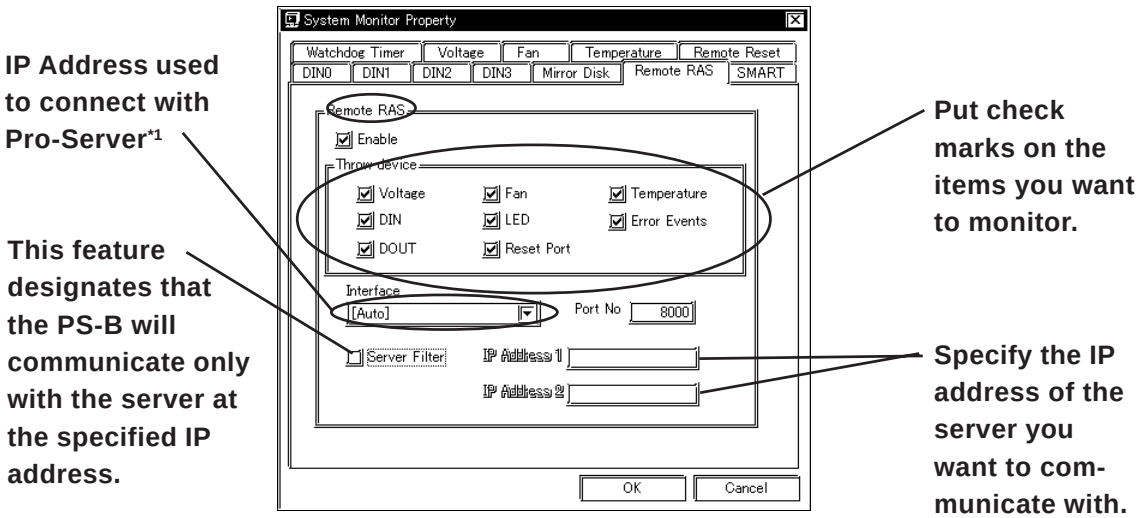
5.3.3 Setup and Preparation of the Remote RAS Feature

In order to monitor the System Monitor/RAS features from the server PC, you are required to set up the Remote RAS feature and start up the System Monitor (PSB_Smon.exe).

■ Setting Up the Client PS-B

(1) Select [Start] → [Programs] → [System Monitor] → [System Monitor Property] commands to start the System Monitor Property.

(2) On the [Remote Ras] tab, put a check mark to the [Enable] checkbox.



The Remote RAS feature is now enabled.

Note: In order to actually activate the Remote RAS feature, you are required to start up the System Monitor (PSB_Smon.exe) within the PS-B.

■ Setting Up the Server PC

(1) Start up the Pro-Studio.

(2) Register the PS-B you want to include in the network to the network station, and edit the participant stations.

Reference ***Pro-Server with Pro-Studio for Windows Operation Manual***

Note: When using the Pro-studio's [Find Stations] command to register the PS-B to the network station, the System Monitor should be activated with the Remote RAS feature enabled in the PS-B.

(3) Select [PL, PS-B] for the PLC type on the network station editing.

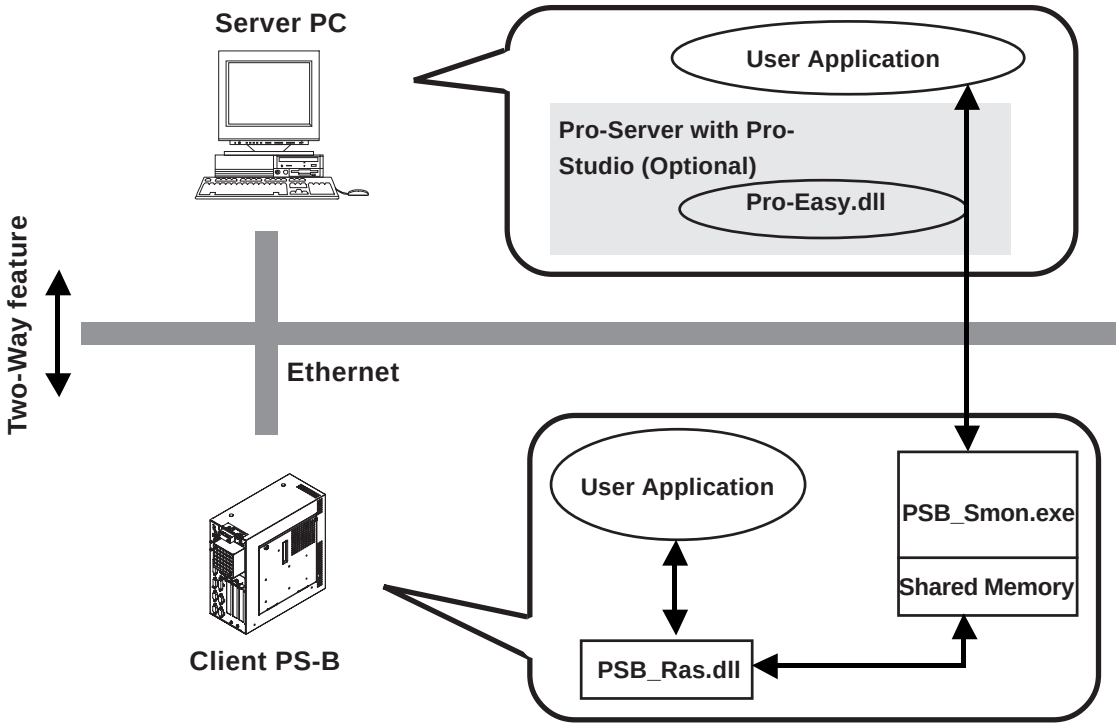
(4) When registering the symbol, refer to the List of Device Address for the symbol that can be registered.

**1 When allocating 2 or more IP Addresses to the PS-B unit, [Auto] cannot be selected. Enter settings that allow the reading of a fixed IP Address from a DHCP server. For details, contact your company's network administrator.*

Note: You are not required to transfer the network project file created with the Pro-Studio to the client PS-B.

5.3.4 Read and Write of the System Monitor/RAS Feature

The read/write operation of the operating conditions of the client PS-B and System Monitor/RAS feature can be performed from the server PC via the Pro-Server.



- The status of the System Monitor/RAS feature is stored in the shared memory for which device address is assigned.

  Reference ***n List of Device Addresses /n Bit Assign of DIN, Error Event, and Error Mask***

- The status of the System Monitor/RAS feature is transferred to the Pro-Server via Ethernet from the PSB_Smon.exe. The RAS feature including voltage, FAN, and temperature can be monitored by monitoring the device addresses assigned from the Pro-Studio.
- The user applications in the server PC monitors the RAS feature through the Pro-Easy.dll program provided from the Pro-Server.
- The client PS-B shares the data with the user applications on the server PC by using the shared memory. The data transfers on both sides are processed via the PSB_Ras.dll and Pro-Easy.dll programs.
- The client PS-B can be shut down and re-started by writing specific value to the software reset port.

Note: For the details of Read/Write to the devices and access procedures, refer to the "List of Device Addresses" below.

■ List of Device Addresses

Device	Device Type	Device Symbol	Read/ Write	Bit Access	16-bit Access	32-bit Access
CPU Voltage *1	WORD	VLT	READ	—	VLT0	—
+3.3V Voltage *1	WORD				VLT1	
+5V Voltage *1	WORD				VLT2	
+12V Voltage *1	WORD				VLT3	
-5V Voltage *1*7	WORD				VLT4	
-12V Voltage *1	WORD				VLT5	
VIT Voltage *1	WORD				VLT6	
Number of Revolution of CPU FAN *2	WORD	FAN			FAN0	
Number of Revolution of Power FAN *2	WORD				FAN1	
CPU Temperature *3	WORD	TMP			TMP0	
System Temperature *3	WORD				TMP1	
DIN	WORD	DIN		DIN00-DIN01	DIN0	
DOUT	WORD	DOUT	Read/ Write	DOUT00	DOUT0	
Error Event	WORD	ERR	Read	ERR00-ERR0E	ERR0	
Internal Memory Area *4	WORD	LS	Read/ Write	LS00000-LS0000F to LS02550-LS0255F	LS0000 to LS0255	LS0000 to LS0254
Shared Memory	WORD	PL		PL00000-PL0000F to PL02550-PL0255F	PL0000 to PL0255	PL0000 to PLS0254
Software Reset Port *5	WORD	RST		—	RST0	—
Error Mask *6	WORD	ERRM	Read	ERRM00-ERRM0E	ERRM0	—

1. *When monitoring the voltage with the device monitor, the unit is "mV".*
2. *When monitoring the voltage with the device monitor, the unit is "rpm".*
3. *When monitoring the voltage with the device monitor, the unit is "°C".*
4. *Used for the system to read/write the data and perform monitoring operation.*
5. *Shuts down and restarts the operation system on the client PS-B.*
6. *Indicates the error event that is being monitored by the PS-B.*
7. *-5V Voltage is ffff(hex), 65535 (decimal).*

When "Forced Shutdown" or "Forced Reboot" is written to the device address, the system automatically shuts down/restarts the operation system without prompting the confirmation for saving the data on current applications.
Take extra cautions when performing write operation in order to avoid accidental data loss.

Value to be Written		Operation
Decimal Number	Hexadecimal Number	
1	0001	Shutdown
2	0002	Reboot
257	0101	Forced Shutdown
258	0102	Forced Reboot

■ Bit Assign of DIN, Error Event, and Error Mask

Device Name	Item	Bit
DIN	DIN0	DIN00
	DIN1	DIN01
	DIN2	DIN02
	DIN3	DIN03
Error Event	CPU Voltage Error	ERR00
	+3.3 V Voltage Errorr	ERR01
	+5 V Voltage Errorr	ERR02
	+12 V Voltage Errorr	ERR03
	-5 V Voltage Errorr	ERR04
	-12 V Voltage Errorr	ERR05
	VIT Voltage Errorr	ERR06
	CPU FAN Errorr	ERR07
	Power FAN Errorr	ERR08
	CPU Temperature Errorr	ERR09
	System Temperature	ERR0A
	Watchdog Timer Errorr	ERR0B
	Mirror Disk Error	ERR0C
	SMART Errorr	ERR0D
Error Mask	CPU Voltage Error	ERRM00
	+3.3 V Voltage Errorr	ERRM01
	+5 V Voltage Error	ERRM02
	+12 V Voltage Error	ERRM03
	-5 V Voltage Error	ERRM04
	-12 V Voltage Error	ERRM05
	VIT Voltage Error	ERRM06
	CPU FAN Error	ERRM07
	Power FAN Error	ERRM08
	CPU Temperature Error	ERRM09
	System Temperature	ERRM0A
	Watchdog Timer Error	ERRM0B
	Mirror Disk Error	ERRM0C
	SMART Errorr	ERRM0D

■ Error Messages

This section describes the error messages of the Pro-Server that are displayed for the errors caused during device read/write operations. The following table lists the error codes for the RAS feature.

Error Code		Error Message
Decimal Number	Hexadecimal Number	
9530	253Ah	RAS Initialization Error
9531	253Bh	Command not supported.
9532	253Ch	Access type not supported.
9533	253Dh	Read/Write type not supported.
9534	253Eh	Access to the device rejected.
9535	253Fh	Value setting to the device/retrieval failed.
65535 (No Code)	ffffh	Returned when read/write of invalid values or unsupported device is performed for Voltage, Temperature, and number of revolution of the FAN.

Reference *For error messages other than listed above, refer to "**Pro-Server with Pro-Studio for Windows Operation Manual**".*

5.3.5 Restrictions

The following table lists the features of Pro-Server that are supported by the PS-B. For the details of each feature, refer to "Pro-Server with Pro-Studio for Windows Operation Manual".

Pro-Server Feature	❍: Supported x: Not Supported
DDE Feature	❍
Simplified DLL Feature (ProEasy.dll)	Listed Separately
OPC Server Interface	❍
SRAM Backup Data	x
Action Feature	x
Distribution Feature	x
Data Viewer	❍ *1
VBA Feature Assist	❍
Device Data Backup/Restore Feature	❍
Capture Screen Save Feature	x
Security Feature	❍
Device Monitor	❍
Status Monitor	x
Read Time Measurement	❍

1. *Pro-Server with Pro-Studio Ver.4.0 or higher is required.*

<Available Simplified DLL Features>

- Direct Read Feature
- Direct Write Feature
- Cache Read Feature
- Retrieval of Multithreading Handle
- Release of Multithreading Handle
- Loading of Network Project File
- Error Code String Conversion
- Station Status Readout Feature
- Initialization of Simplified DLL
- Termination of Simplified DLL

- Note that the PS-B-supported OS and features supported by Pro-Server are different.
- The Remote RAS feature and Pro-Server cannot be operated simultaneously on the PS-B.

5.4 Remote Shutdown Feature

The Remote Shutdown feature allows the user to shut down and/or restart the PS-B from the server PC via the network when the Pro-Server is not installed to the system. The installer of this application is included on the accessory CD-ROM (\Utility\Shutdown).

When the installer is started, you are asked to select the application for server or the client. Select the desired application, and follow the instruction on the screen to complete the installation.

File Name	Folder (Same for both WindowsXP and Windows2000)
PSClt.exe	C:\Proface\Shutdown\Client
RSSvr.exe	C:\Proface\Shutdown\Server

Reference *4.1.1 Software*

- For the operation procedure of this feature, refer to the online help of the Remote Shutdown Application.
- Both applications (for server and client) can be installed on the PS-B to achieve self-control system. In such a case, however, the PS-B should be connected to a network.

Memo

1. Cleaning the Fan Filter
2. Periodical Inspections

Chapter 6 Maintenance and Inspection

This chapter describes the cautions and inspection criteria for ensuring comfort and safety in operating the PS-B.

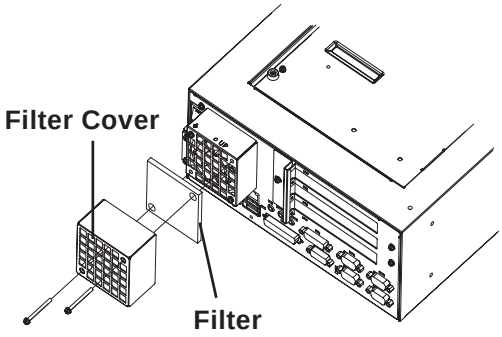
6.1 Cleaning the Fan Filter

A fan is installed to the PS-B for cooling the unit. Be sure to periodically perform inspection and cleaning of the fan, since dust accumulated on the fan filter will affect the cooling performance of the fan.

Procedure

Remove the screws (2) on the filter cover and filter cover, and then remove the filter.

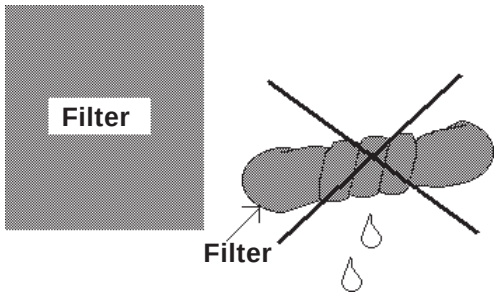
Clean the filter by using vacuum cleaner to remove the dust accumulated on the filter. Set the filter to the original position, and then reattach the filter cover and filter cover mounting screws.



Note: If stubborn dust or stains persist, wash the filter with neutral detergent and rinse it thoroughly with water.

Important

- **Do not wring the water out of the filter.**
- **Dry the filter in the shade and do not leave it in the direct sunlight.**
- **Wait until the filter is completely dry, and then reattach to the main unit.**



6.2 Periodic Maintenance Points

Check the PS-B periodically to ensure it is in good working condition.

■ Ambient environment check

Is the ambient temperature within the specified range?

With HDD, FDD	Without HDD, FDD
5 to 50°C	0 to 50°C

☐ Is the ambient humidity within the specified range (10%RH to 85%RH)?

☐ Is the atmosphere free of corrosive gas?

■ Electrical specifications check

☐ Is the voltage adequate (AC85V to AC265V, 50/60 Hz)?

■ Installation check

☐ Are all cables securely connected (not loose)?

☐ Have any of the PS-B unit's installation brackets become loose?

1. General Specifications
2. Performance Specifications

Chapter 7 Specifications

7.1 General Specifications

7.1.1 Electrical Specifications

Rated Voltage	AC100V/AC240V
Allowable Voltage Range	AC85V to AC265V
Rated Frequency	50/60 Hz
Allowable Voltage Drop	1 cycle max. (Note: Intervals between instantaneous outage should be 1 s or longer.)
Power Consumption	110 VA max.
Insulation Endurance	AC 1500V, 20 mA per minute (Between the charging and FG terminals)
Insulation Resistance	10 MΩ min. at DC 500V (Between the charging and FG terminals)

7.1.2 Environmental Specifications

Ambient Temperature (Interior)	5 to 50°C (With HDD) 0 to 50°C (Without HDD)
Storage Temperature	-10 to +60°C
Relative Humidity	10 to 85%RH (No condensation, wet-bulb temperature of 29°C max.)
Storage Humidity	10 to 85%RH (No condensation, wet-bulb temperature of 29°C max.)
Dust	No dust or dirt should be present.
Pollution Level	Pollution level 2
Corrosive Gas	No corrosive gas should be present.
Vibration Resistance	9.8 m/s^2 (10 to 25 Hz, withstands for 30 minutes in X/Y/Z directions) With HDD attached: 4.9 m/s^2
Noise Resistance (Impulse Noise)	Noise Voltage: 1500 V Pulse Width: 50 ns, 500 ns, 1 µs Rise Time: 1 ns (By noise simulator)
Antistatic Charge	6 kV, IEC 61000-4-2
Noise Immunity (The first transient burst noise)	Power Line: 2 kV, IEC 61000-4-4 COM Port: 1 kV, IEC 61000-4-4

- **When using optional equipment, be sure to check the specifications for the equipment.**
- **The hard disk drive is a consumable item. It is recommended to prepare for product malfunction by making periodical backups of the data and preparing replacement HDD unit.**
- **The operation life of a hard disk drive varies depending on the use environment and conditions; however, it is approximately 20,000 hours (of operation time) under ambient temperature of 20°C or 5 years, whichever comes first.**
- **Operating the hard disk under harsh environment of high temperature and high humidity will shorten the operating life. It is recommended to operate the HDD at wet-bulb temperature of 29°C or lower. The condition is equivalent of 35°C with 64%RH, or 40°C with 44%RH.**

7.1.3 External Specifications

Grounding	Protective grounding: D-type grounding Functional grounding: D-type grounding
Structure	Installation Method: In-cabin installation
Cooling Method	Cooling by main unit fan and CPU fan
Weight	Approx. 4.5 kg (Main unit only)
External Dimensions	118 (W) x 265 (H) x 299 (D) mm (Not including projections)
With CD-ROM/FD Drive unit attached	159 (W) x 265 (H) x 299 (D) mm (Not including projections)
With RS-232C/RS-485 Conversion Unit attached	139.5 (W) x 265 (H) x 299 (D) mm (Not including cables and projections)

7.2 Performance Specifications

7.2.1 Performance Specifications

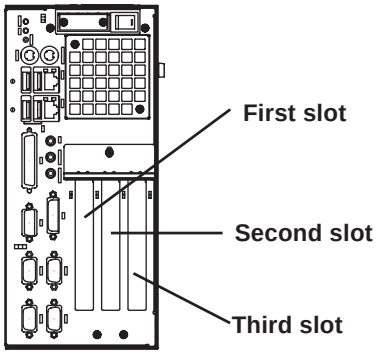
CPU	Celeron® 566 MHz/Pentium® III 1GHz (BUS 100MHz) (Intel)	
DRAM (SDRAM DIMM)	DIMM socket x 1: 128 MB/256 MB (256 MB max.)	
BIOS	First BIOS (Phoenix Technologies Co.)	
Secondary Cache Memory	Built into CPU (Celeron:128 KB, PentiumIII: 256KB)	
Graphics*1	VGA (640 x 480 dots) to UXGA (1600 x 1200 dots) VESA 256 colors/16-bit color/32-bit color *2	
Video Memory	4 MB fixed (UMA type)	
Video I/F	Analog RGB I/F	
	DVI-D I/F	
Serial (RS232C)	COM1	D-sub 9 pin (male), (RI/+5 V selectable)
	COM2	D-sub 9 pin (male)
	COM3	D-sub 9 pin (male), (RI/+5 V selectable)
	COM4	D-sub 9 pin (male)
USB (USB1.1)	Front face: 4 ports	
LAN	IEEE802.3 compatible (10 Base-T/100 Base-TX automatic changeover) Front face: 2 ports	
Disk Drives	FD I/F	For 2-mode 3.5 inch floppy disk I/F Internal: 1 port (for Digital Electronics Corporation's CD-ROM/FD drive unit)
	IDE I/F	For built-in primary HDD I/F Internal: 2 ports
		For secondary CD-ROM I/F Internal: 1 port (for Digital Electronics Corporation's CD-ROM/FD drive unit)
Keyboard	PS/2 I/F (Mini-DIN 6 pin, female), Front face: 1 port	
Mouse	PS/2 I/F (Mini-DIN 6 pin, female), Front face: 1 port	
RAS	RAS I/F (D-sub 25 pin, male) Front face: 1 port	
Sound	LINE IN, SPEAKER OUT, MIC IN(Standard type AUDIO jack)	

Note:

- The PS-B unit's CPU and DRAM are user-selectable when the unit is purchased.
- Be sure to use SVGA (800 x 600 dots) or higher, 16-bit display colors or higher resolution when using Windows®XP.

1. *The display resolution used must be supported by the PS-B unit's OS, applications and the external display unit.*
2. *1600 x 1200 dots: Up to 256 colors*

7.2.2 Expansion Slots



		Board Size	Slot Pitch	Actual Height of Expansion Board
First slot	PCI	220 x 106.68 mm	20.32 mm	13 mm
Second slot		245 x 106.68 mm		
Third slot				
Power supply capacity	5 V: 3 A, +3.3 V: 0.75 A, 12 V: 0.75 A, -12 V: 0.1 A (Total of three slots)	-	-	-

7.2.3 Clock Accuracy

Clock Accuracy	±180 seconds/month

The clock built into the PS-B (RTC) has a slight error. The error is ±180 seconds per month when the PS-B is turned off and kept under normal temperature. However, the error may become as large as ±300 seconds per month depending on the temperature differences and years of service. If using the PS-B in the system in which clock accuracy is vital, be sure to adjust the clock periodically.

A.1 Hardware Configuration
A.2 List of Optional Devices

Appendices

This section describes the hardware configuration including the I/O map, memory map and interrupt map, and various optional devices used with the PS-B.

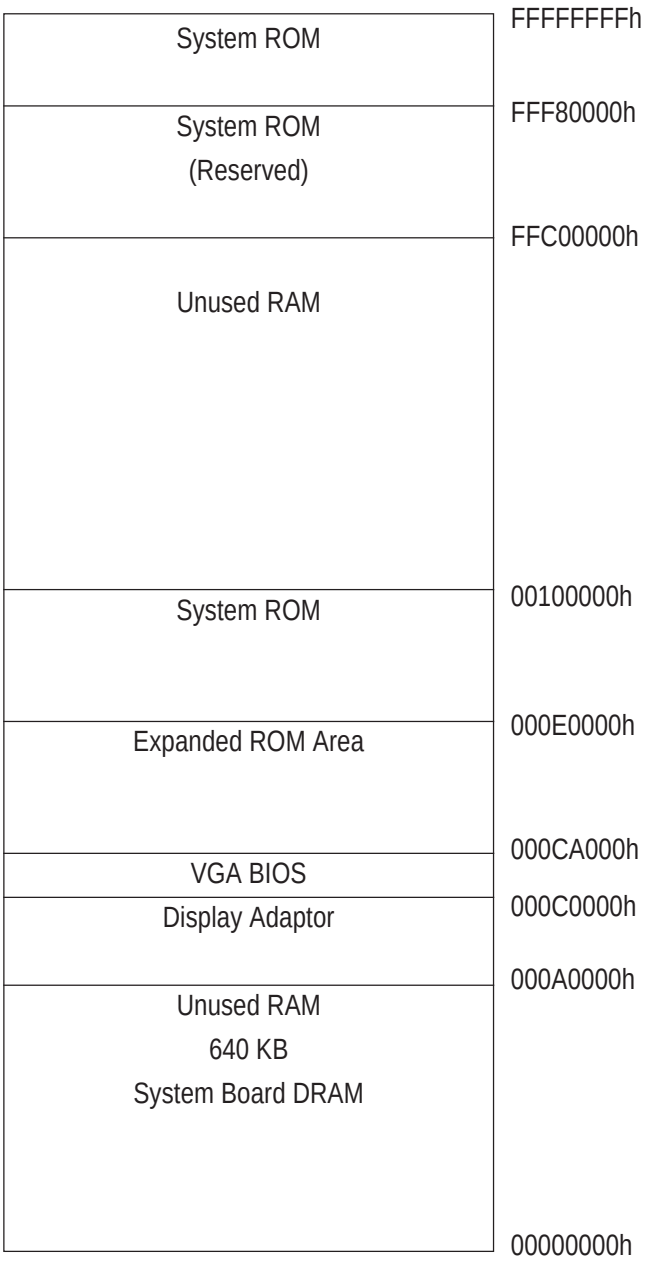
A.1 Hardware Configuration

A.1.1 I/O Map

Address	AT System Device	System Device
0000H - 001FH	DMA controller (8237)	
0020H - 003FH	Interrupt controller (8259A)	
0040H - 005FH	System timer (8254)	
0060H - 006FH	Keyboard controller	
0070H - 007FH	Real time clock, NMI mask	
0080H - 009FH	DMA page register	
00A0H - 00BFH	Interrupt controller 2 (8259A)	
00C0H - 00DFH	DMA controller 2 (8237)	
00F0H - 00FFH	Numeric data processor	
01F0H - 01FFH	Hard disk (IDE)	
0290H - 0297H	Reserved	System monitor
02E8H - 02EFH	Reserved	Serial port 4 (COM4)
02F8H - 02FFH	Serial port 2 (COM2): General use	
03B0H - 03BBH	Video controller (VGA)	
03C0H - 03DFH	Video controller (VGA)	
03E8H - 03EFH	Reserved	Serial port 3 (COM3)
03F0H - 03F7H	Floppy disk controller	
03F8H - 03FFH	Serial port 1 (COM1): General use	

The resources of the PCI BUS board that is installed by the user are automatically assigned to the free resource by the Plug and Play feature.

A.1.2 Memory Map



A.1.3 Interrupt Map

Note: The interrupts and DMA channel will change depending on the PCI/ISA features available.

■ Hardware Interrupt List

	Description
NMI	Parity Error or I/O Channel Check
IRQ 0	Timer (in the Chipset)
1	Keyboard
2	Cascade from Controller 2
3	Serial Port 2 (COM2): General Use Port
4	Serial Port 1 (COM2): General Use Port
5	Available for users *
6	Floppy Disk Controller
7	Available for users *
8	Real Time Clock
9	Available for users *
10	Serial Port 4 (COM4): General Use Port
11	Serial Port 3 (COM3): General Use Port
12	PS/2 Mouse
13	Numeric Data Processor
14	Hard Disk (IDE)
15	Hard Disk (IDE)

Important

The "*" mark indicates that, depending on the customer's settings, the following devices are automatically allocated as Plug and Play devices.

Display Controller
SMBus Controller
Multimedia Device
Network Controller
USB Controller

■ DMA Channel List

	Description
DMA 0	
1	
2	Floppy disk controller
3	
4	Cascade to controller 1
5	
6	
7	

For 8-bit transmission

For 16-bit transmission

A.2 List of Optional Devices

The following table lists the Digital Electronics Corporation's optional devices and commercial products used with the PS-B.

Product Name	Model	Description
CD-ROM/FD Drive Unit	PSB-CD/FD01	External unit in which CD-ROM drive and FD drive are combined.
DIM Module	PL-EM128	SDRAM (DIM) with capacity of 128 MB.
	PL-EM256	SDRAM (DIM) with capacity of 256 MB.
RS-232C/RS-485 Conversion Unit	PL-RC500	Unit for converting the RS-232C I/F to RS-485 I/F.
CF Card Unit	PSB-CFU01	Special unit for CF card with 5V power supply.
HDD Unit	PSB-HD020	20 GB 2.5" HDD unit. (OS not included.)
Installation Fasteners	PSB-AT01	Used to install the PS-B unit in a panel. (2/set)